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INTERMEDIATE NEWS NUMBER,

DEVOTED TO

ASSOCIATION AND BUILDING NEWS.

PUBLISHED BY

THE INLAND PUBLISHING COMPANY,

CHICAGO, ILL.

WE publish in this issue the complete, verbatim report of the debate upon the Sanitary bill now before the Illinois State Association, also reprinting the entire bill so that each member can be fully prepared to intelligently discuss it at the next regular meeting, January 8. It will be the special order of business, and the meeting will be attended by committees from the Master Plumbers and Master Sewer-builders' Associations. Members of the city health, building, and sewerage departments are also invited to be present.

THE delegates representing the Western Association of Architects at the annual convention of the American Institute, were John W. Root, of Chicago, and Sidney Smith, of Omaha. En route for New York, these gentlemen were entertained handsomely by the Buffalo Society of Architects. In New York their reception by the members of the institute was hearty, and a most cordial feeling was manifest toward the association they were sent to represent. The fact that the Western Association had selected this committee from their most honored members was recognized. Mr. Root, as president of the association, and Mr. Smith for two terms a member of its board of directors (and a candidate for the office of president at the last convention, withdrawing in favor of Mr. Root), as well as a member in honorable standing for more than two decades of the Royal Institute of British Architects, gave an additional evidence of the fraternal feeling existing in the Western Association for the American Institute. This, the institute heartily seconded in the many courtesies extended the visitors.

Twentieth Annual Convention American Institute of Architects.

THE twentieth annual meeting of the Institute was held in New York on the first, second and third instants, being the first meeting of that body held in New York City for seven years.

The convention was held in the directors' room of the New York Mutual Life Insurance building, President Thomas U. Walter, of Philadelphia, in the chair.

An unusually large number of representative members were present, including the following: Thomas U. Walter, Philadelphia; Alfred Stone, Providence, R. I.; Stephen C. Earle, Worcester, Mass.; Warren R. Briggs, Bridgeport, Ct.; L. W. Robinson, New Haven, Ct.; Jas. G. Cutter, Rochester, N. Y.; E. I. Nickerson, Providence, R. I.; M. E. Bell, Washington, D. C.; Geo. A. Frederic, Baltimore, Md.; Sidney Smith, Omaha, Neb.; John W. Root, Chicago, Ill.; F. W. Humble, Buffalo, N.Y.; Howard Hoppin, Providence, R.I.; E. D. Evans, Pittsburgh, Pa.; Glen Brown, Washington, D. C.; John H. Gouge, Utica, N.Y.; J. Huckle, jr., Philadelphia, Pa.; E. L. Walter, Scranton, Pa.; Edward Hazlehurst, Philadelphia, Pa.; G. L. Norrman, Atlanta, Ga.; A. Echhorn, Orange, N. J.; J. O'Rourk, Newark, N. J.; C. A. Wallingford, Minneapolis, Minn.; O. P. Hatfield, E. T. Littell, A. J. Bloor, N. Le Brun, R. H. Robertson, Pierie Le Brun, De Lemos, Cordès, Prof. W. R. Ware, E. H. Kendall, G. B. Post, R. M. Hunt, H. M. Congdon, H. J. Hardenburg, C. W. Clinton, J. R. Renwick, A. Potter, R. M. Upjohn, H. O. Avery, H. H. Holly, James Ware, all of New York City; John Moser, Washington, D. C.; J. C. Sturgis, Boston, Mass.; Thomas Nolan, Rochester, N.Y.; Walter Cope, Philadelphia, Pa.; John Stewardson, Philadelphia, Pa.

The Western Association of Architects was represented by John W. Root, of Chicago, and Sidney Smith, of Omaha, members of the committee appointed for that duty.

THE INLAND ARCHITECT was represented by R. C. McLean, and was the only architectural journal represented at the convention. Mr. Henry C. Meyer, of the *Sanitary Engineer and Construction Record* was also in constant attendance.

Mr. George C. Mason, the secretary of the A.I.A., was suddenly called home, and A. J. Bloor was appointed secretary pro tem.

PRESIDENT'S ADDRESS

President Walter read the following address:

Fellows and Associates of the American Institute of Architects:

I now have the honor, gentlemen, to open the Twentieth Annual Convention of the Institute, with an address on the progress of our art, and its cognate elements, during the past year.

Architecture being a science in which "the good, the true, and the beautiful" predominate in all its relations, it is obvious that a careful study of the theory of æsthetics, or the philosophy of taste, is indispensable to a successful practice of our profession. It is also important that we promote, as far as practicable, social and fraternal relations. We shall find that the better we know each other, the better it will be for art.

While it is undoubtedly true that rivalry is the soul of progress and improvement, it is also true that rivalry does not necessarily involve professional animosities: these should be wholly unknown to those whose studies are devoted to the arts of polished life,—the ennobling and elevating character of which should carry as above all petty considerations.

Another year having elapsed since we met in annual convention, it will be proper, and perhaps interesting, to glance retrospectively at the architecture of the recent past, and to note some of the evidences of progress and improvement observable in most of the buildings now in progress, as well as in many that have recently been completed. The ornamental character, particularly of brickwork, throughout the country, has undergone changes which impart to the most inconsiderable structures, as well as to more pretentious buildings an air of taste and refinement indicating a growing tendency to the cultivation of the beautiful in art. The introduction of terra-cotta decorations in brickwork may also be referred to as imparting an artistic interest, wherever they are tastefully and harmoniously applied. In this connection it should be remarked, that the popular idea that comfort, convenience, and good taste in the design and construction of well-studied architecture are necessarily costly elements in building, has no foundation in fact. On the contrary, there is no reason why the most inconsiderable buildings, whether in town or country, far or near, should not be made to possess an amount of comfort and taste equal to more pretentious structures and at a greatly reduced pro rata rate of expenditures.

It is observable in all important centers of civilization that the *effete* forms and constructions of bygone ages have ceased to rule in modern art;—in other words, the tendency of architects of the present day to do their own thinking, is everywhere apparent, which is not to be objected to, provided they do not degenerate into the production of forms and combinations not in harmony with the acknowledged elements of good taste. We also find unlimited license exercised in the modification and adaptation of the forms of "Pointed Architecture," which is understood to be a generic term indicating the entire genus of that species of building, and which covers a vast amount of peculiarities pertaining to different nations, from which studies in Mediæval art are furnished in endless variety.

Another decided epoch in the history of architecture is the revival of new classic forms of building in this country as well as in England, such as the Queene Anne, the Elizabethan, the Jacobean and the Colonial styles, which, if properly handled, may be made to furnish a pleasing illustration of the better class of the early buildings of this country; which, if its distinctive characteristics are made sufficiently obvious, may become emphatically the *American Colonial style*, as the Queen Anne, the Elizabethan, and the Jacobean may, with equal propriety, be known as the *English Colonial style*. The great distances which separate the art centers of our country are already, in a measure, overcome by the establishment of associations kindred with our own Institute, and working on the same general principles of organization which imparted to it life and energy on its assuming the character of a nucleus to a national confederation of architects. A recognition of so comprehensive a professional relationship in the interests of science would, undoubtedly, tend to promote a *esprit de corps* which is greatly needed.

The following are the *twelve* separate architectural associations at present organized and in active operation, to wit:

Western Association of Architects, at Chicago.
Illinois State Association of Architects, at Chicago.
Indiana State Association of Architects, at Indianapolis.
Missouri State Association of Architects, at St. Louis.
Kansas City Society of Architects, at Kansas City.
The Architectural Association of Iowa, at Des Moines.
The Architectural Association of Minnesota, at Minneapolis and St. Paul.
Buffalo Society of Architects, at Buffalo.
Kansas State Association of Architects, at Topeka.
Association of Ohio Architects, at Cincinnati.
Association of Texas Architects, at Austin.
Nebraska State Association of Architects, at Omaha.
Chicago Architectural Sketch Club, at Chicago.

Arrangements can, no doubt, be made with such architectural organizations as now exist, and with such as may hereafter be established, to communicate annually with the American Institute of Architects, through its secretary in New York, such information as will enable us to furnish the entire membership of the confederation, with the reports of the proceedings of each annual convention, covering succint accounts of our national status.

It is gratifying to know that the influence for good in the multiplication of associations of professional architects has already been felt throughout the country, in improvement in taste, in the character of design and construction, and in promoting the advancement of our art and the sciences that underlie it, as well as for the development of artistic merit, and for the diffusion of an intelligent knowledge of the principles involved in the thousand and one ingenious contrivances and inventions now existing to promote health, comfort, safety and convenience in the disposition of our varied environments.

The secretary read the report of the Board of Trustees, giving an account of meetings for business during the past year. Referring to the report made by the delegate chosen to represent the A. I. A. at the first convention of the Western Association of Architects, the names of honorary and active members deceased during the year were read, and attention was called to the committee formed for urging the passage of a federal act for the promotion of architectural competition, with special reference to public buildings, and its action in joint committee with the Western Association of Architects. The report also called attention to the action of the Boston Chapter in a circular letter addressed to other chapters to further the erection of some enduring monument to the memory of H. H. Richardson, late Fellow A.I.A. The institute was reported to be steadily growing in membership and influence. Seven new fellows and six new associates were elected during the year—one associate was promoted to fellow, two associates have resigned. There are now 192 professional members. A movement is on foot for the establishment of new chapters in Indianapolis, Ind., and Pittsburgh, Pa.

The report was referred to a special committee, to be named by the chair, to report later to the convention.

Mr. O. P. Hatfield, treasurer, then read his report: Received from fees, etc., $1,389.50; balance from last year, $263.64; total, $1,653.14; disbursements, $1,512.10; balance on hand, $141.04.

There was reported a nucleus of a fund for a building for the purposes of the institute, which was greatly needed.

All matters in this report not relating to finance were referred to the special committee for report to the convention.

Alfred Stone, H. H. Holly and R. M. Hunt, were appointed by the chair to audit the treasurer's report.

The delegates from the Western Association of Architects, J. W. Root and Sidney Smith, were announced, and invited by vote of the convention to take part in its deliberations. Mr. Root replied in behalf of his association, and ended his remarks by saying: "Do not understand that the Western Association is in any way a rival of yours, but is established to carry forward the work you are engaged in in the 'Wild West.' Again allow me to thank you for your reception of Mr. Smith and myself as delegates from the Western Association."

Reports from the chapters were then read:

The New York Chapter showed that its membership had increased, that its examining committee had been often called upon to exercise its functions with reference to the New York Building Law. The Willard Commission were reported as considering the important question what to choose from the selection of casts, etc., gathered by Mr. P. Le Brun; they also reported that the corner-stone of the building to contain them had been laid.

The Philadelphia Chapter reported that the contemplated meeting of the society at members' homes had been very successful; they referred to the municipal bay-window order, which had been repealed by vote of the common council, through the architects' efforts, but was vetoed by the mayor. The ordinance now existing compelling proper plumbing practice, and the enforcement of sanitary laws, had been effected by the efforts of the chapter.

Rhode Island Chapter reported that its monthly meetings had continued. The Committee on Entertainments had prepared a list of subjects for discussion at the monthly dinners; also problems for working out.

Baltimore Chapter reported the usual meetings; a good library, but the attendance was not as large as it should be.

Chicago Chapter reported increased membership of six. Its president, Mr. Jenney, who is also the secretary for Foreign Correspondence, not being present, wrote that he had attended to his duties in sending notices of condolence to families of honorary members deceased abroad, and had received replies.

The chair appointed as special committee for considering foregoing reports: James Renwick, J. G. Cutler and G. A. Frederic.

The chair appointed as committee on nominations R. M. Hunt, E. J. Nickerson and C. A. Wallingford.

The paper read by T. M. Clark, of Boston, at the Nashville convention, on the subject of an architect's protective association (see proceedings of last convention, A. I. A.), was discussed informally.

Mr. Bloor moved the matter be referred to a special committee, of which Mr. Clark, the author of the paper, be a member.

Mr. Frederic was in favor of Mr. Bloor's motion, but thought as Mr. Clark was not at home, the discussion should be deferred to the next annual meeting.

Mr. Kendall thought this necessary, as Mr. Clark was in possession of further information, and it would be best to have him present.

Mr. Frederic withdrew his remarks, and Mr. Bloor stated that Mr. Clark was desirous of having the subject discussed, that he might obtain the opinion of the members.

Mr. Hatfield moved that Mr. Frederic be placed on that committee in place of Mr. Clark for this convention.

Amended by Mr. Kendall, that Mr. Frederic be asked to present his views upon the subject for discussion at the next session, which was adopted.

Mr. Glen Brown, of Washington, D. C., read an interesting paper on experiments in trap siphonage at the Museum of Hygiene,* which was referred to Committee on Publications, and ordered printed.

Mr. G. A. Frederic, of Baltimore, read a paper upon "Ethics of Architectural Practice," referring to the reference to the same subject in the president's address, and expressing some diffidence in presenting the paper.

Reference in the paper to some cases of unprofessional conduct, brought a motion from C. A. Wallingford, that the paper be accepted and referred to a special committee of three, appointed by the chair, with power to investigate, and if any irregularity existed among members, to report such charges preferred against such member.

Mr. Frederic said that he had no charges to prefer, but could substantiate any statements he had made, by evidence. He only spoke of the lack of unity and harmony among members, and it was to, as far as possible, call attention to and rectify an existing evil, that the paper was read.

Mr. Wallingford said that anyone bringing such a paper before the association must have some ground for doing so. If such people as referred to in the paper did not mean to do what was right when they came into the institute, they had better keep out, and if they did not do what was right they should be put out. (Sensation.)

The president suggested that the convention appoint the committee; and Mr. Bloor moved that Messrs. Wallingford, Cutter and Moser be that committee, which was done.

The meeting adjourned, to convene the following day at ten o'clock; and the afternoon was spent by the visiting members in examining buildings under the guidance of the New York Chapter.

An informal reception was given by Professor Ware, in the architectural department of Columbia College. The feature of the evening was the inspection of sketches of the recent works of M. E. Bell, the supervising architect, and the drawings submitted in the Kansas City Chamber of Commerce competition. Among the designs for government buildings was that of the proposed custom house and postoffice at Detroit. Mr. Bell was present, and also Mr. Moser, who now is engaged in the designing department of the government office under Mr. Bell.

Mr. Moser gave a facetious blackboard illustration of how national characteristics are carried out in ornamentation, which was very bright, and well received by the assembled architects.

The different works of the students, under Professor Ware, were inspected, and the general excellence of the Columbia College School of Architecture generally commented upon. Specimens of endolithic marble and of Belcher mosaic stained glass were upon exhibition. Mr. Caryl Colman, who represents the artists and manufacturers was present.

A pamphlet published by the Supervising Architect, giving a history of that office and its general organization and functions was placed at the disposal of members.

* Published in the *Sanitary Engineer* of December 11.

The drawings submitted in the Kansas City Chamber of Commerce competition were arranged on tables in the library, for inspection, and were examined with interest. Mr. Bloor showed photographs which he recently brought from Bermuda.

On the whole, this informal meeting was one of the most enjoyable and profitable of the convention.

SECOND DAY.

Meeting called to order at 11 A.M., President Walter in the chair.

The report of the Chicago Chapter, submitted by Secretary Pashley, was read and the informal report withdrawn.

Mr. Bloor read a report upon his visit to the convention of the Western Association at St. Louis as a delegate from the Institute. Mr. Bloor said the report was largely a synopsis of the official verbatim report of the proceedings of the convention published in THE INLAND ARCHITECT, and frequently referred to that journal as his guide in formulating his report. Mr. Bloor also spoke of the united efforts of the Institute and the Western Association in regard to the bill for the improvement of the architectural status of the supervising architect's office and the designing of government buildings; also of his cordial reception at St. Louis and his visit to Washington with the joint committee.

Miflin E. Bell, the supervising architect, called attention to a pamphlet that had been distributed among the members, giving the history and operation of that office, and containing the draft of a bill which might be substituted for the one already before congress, but stating that he did not come to the convention to make any remarks but would like to hear the committee's report and then would be willing to answer any questions, etc. Mr. Bloor asked Mr. Bell if he would like to be added to the committee, but he said he could do more good independently, as a member. He thought there were things in the present bill fatal to its passage. The committee on Architectural Commission, appointed by the bill, was composed of men thoroughly incompetent to fill the office, and many other similar objections.

Mr. Kendall moved that the A. I. A. instruct its committee and ask the W. A. A. to instruct its committee to act in concert with Mr. Bell and formulate a new bill.

Mr. Kendall asked the representatives of the Western Association how soon that committee could act, and Mr. Root replied that, as a representative, he would bring the matter before the committee and as president of the W. A. A. he would see that it was immediately acted upon.

The motion was passed and the president, after remarking that though this placed the bill in a new shape, and perhaps seemed a step backward, he hoped that the object would be indefatigably pursued until the object was attained.

Mr. Moser read a very clever, facetious and forcible paper upon the prevailing architectural design, making a strong appeal for hard work and hard study.

Charles H. Wingate was introduced and spoke on the sanitary aspect of architectural practice. He took the ground that architects did not give sufficient attention to the sanitary conditions in planning houses, and cited instances of well-known buildings, in which he stated that defects existed, requiring the services of a sanitary expert, and that the time had come when the architect must become a sanitary engineer or employ such. It was largely in the work of repair that the sanitary expert was employed. The work of the plumber was merely mechanical; the sewer gas scare had been vastly exaggerated. Not enough attention was given to earth currents, damp and damp walls. He dwelt particularly on the importance of making houses damp-proof and water-proof, citing numerous diseases as resulting from soil moisture. He alluded to the typhoid fever outbreak in a section of Brooklyn last year, and stated that in the particular district affected none of the houses had traps on the main drain, the absence of which traps he considered as offering facilities for the spread of this disease. He stated that many skylights now put in buildings did not act as ventilators, but were made tight. He thought the tendency for decoration and fitting up the interiors had the result of excluding light. He indorsed the requirements of the Board of Health of New York in requiring castiron pipe in the houses, and stated that in his experience he had never seen but one earthen pipe house-drain laid, in which the joints were tight. He concluded by urging that the sanitary question should be taken up vigorously, and especially by architects.

The special committee upon board of trustees, the treasurer and chapter reports reported favorably upon the indorsed recommendations of the various chapters, and the social features of chapter meetings, recommending their continuance; also that the committee on federal architecture be continued on the part of the institute in conjunction with that appointed by the Western Association, with power to act.

The report of Mr. Frederic on Architects' Protective Association was called for. He stated in detail a general plan for the formation of such in the United States, and asked for an open discussion of the subject. He said he would support a joint committee with the Western Association to carry out the purpose of establishing such a society here to report to the next convention, or to a committee of conference.

It was moved that the subject be discussed. Mr. Root promised to appoint a committee on the part of the Western Association.

The negative side was discussed by Mr. Hazelhurst, who thought that it would be detrimental for architects to enter into a protective association and indorsed Mr. Kendall's view that architects should learn to protect themselves against themselves before they sought protection against their clients.

Mr. Bloor moved and amended by Mr. Kendall that the matter be referred to a joint committee, Mr. Clark and Mr. Frederic representing the institute, and Mr. Root and Mr. Smith the Western Association; these to select a fifth member. The committee appointed to consider the charges in relation to the unprofessional conduct of a Baltimore architect said that in the opinion of the committee that the member had been guilty of the most flagrant violation of all professional usage based upon documentary evidence of the most conclusive character.

Mr. Briggs said this case was only one in many, and should be strictly dealt with.

Mr. Root stated that the question arose in the last meeting of the Western Association, and a careful revision of the entire membership was ordered, so that none but practicing architects, and in honorable practice of the profession would be retained.

The report was adopted with the recommendation of the committee that the Board of Trustees ask for the resignation of the offending member; and also they recommend that in any such future case the offending member be expelled. They also recommend the appointment by the board of a standing committee to consider all such cases.

Upon motion, the report and recommendations were adopted by vote of the convention.

The election of officers being next in order, Messrs. Upjohn and Hazelhurst were appointed to act as tellers.

The election resulted as follows:

Thomas U. Walter, LL.D., of Philadelphia, president; A. J. Bloor, of New York, secretary; O. P. Hatfield, of New York, treasurer.

Board of Trustees, H. M. Congdon, of New York; Napoleon Le Brun, of New York; E. T. Littell, of New York; R. M. Upjohn, of New York; and secretary A. J. Bloor, ex-officio.

Secretary of Foreign Correspondence, W. L. B. Jenney, of Chicago.

The following committees were appointed:

Committee on Publications, H. H. Holly, New York; T. M. Clark, Boston; Charles Crapsey, Cincinnati; J. McArthur, Philadelphia.

Committee on Education, Alfred Stone, Providence; Henry Van Brunt, Boston; Professor N. Clifford Ricker, Champaign, Ill.; T. M. Clark, Boston; Professor W. R. Ware, New York.

At the close of the vote for president, Mr. Walter said: "I return you many thanks for your kindness. I think you could have done better, all the time I have been your president, but I have done what I could, and have been in my place at your meetings as often as I could. I promise to take the position as your president for another year, if I live that long, but after that I hope you will allow me to take a rest. At all times believe me, I am yours, and deeply interested in your welfare, as I have been in that of the profession for nearly sixty years. Again accept my thanks."

Mr. Kendall: As long as Mr. Walter will permit us to use his name, the New York chapter will give him our hearty and cordial support.

Mr. Bloor read a motion presented by Mr. Bell, directing the trustees to consider means for providing for a permanent home for the institute.

Mr. Bell said he was surprised to find that the institute had no permanent quarters.

Mr. Littell urged the importance of this, and advocated the formation of a stock company for the purpose.

Mr. Hunt said the institute belonged to the United States of America, and that meetings should be held in other cities, and this would tend toward the permanent holding of meetings in New York. He also stated that this plan was proposed at first, and was abandoned. He did not consider it feasible.

Mr. Upjohn thought the movement should come from the members outside of New York.

Mr. Kendall moved that a committee of two be appointed, composed of M. E. Bell and E. T. Littell.

The motion was carried, and the committee instructed to report at the next annual convention.

Mr. Hunt called the attention of members to the forthcoming exhibit of architectural drawings by the architectural league, January 10, next.

Mr. Kendall moved the thanks of the architects for the use of the directors' room, kindly furnished by the New York Mutual Life Insurance Company. Motion passed unanimously.

Mr. Wallingford, of Minneapolis, moved the thanks of the visiting architects for courtesies extended by the New York Chapter. Passed.

Mr. Hunt extended to the visiting architects the invitation of Mr. H. G. Marquand to visit and examine his house on Madison avenue, together with his collection of works of art.

Upon motion, the convention adjourned to meet at the call of the Board of Trustees.

The afternoon was passed by a large number of visitors in viewing the residence of Mr. Henry G. Marquand. Through the courtesy of that gentleman, who as an art connoisseur is known to two continents, a most thorough inspection was permitted. The interest was added to by the presence of the architect, Richard M. Hunt, whose good fortune it was to design this beautiful home. The hall, each room and chamber, was in itself distinctive, yet harmonious, and contained tapestries, paintings, etc., that few art collections could surpass.

The evening was occupied by the annual banquet of the institute. It was given at Pinard's, and was one of the most enjoyable in the history of the institute dinners. The chair was occupied by Mr. Kendall, and the speeches that followed were well chosen. Mr. Kendall spoke of the honored president, Thomas U. Walter, and his health was drank standing.

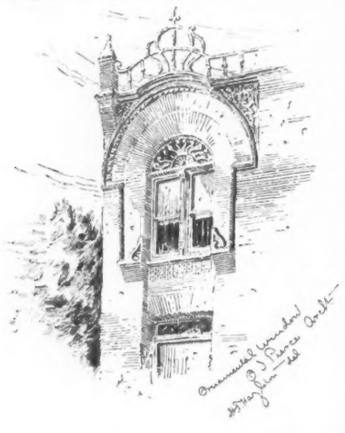
Mr. Renwick said the institute was to be congratulated upon its foreign secretary, and proposed that he be perpetuated as the representative of the *Neo-Grec* style, as he succeeded in getting an answer from the Greeks without knowing it.

Mr. Hunt spoke of his late visit to England and France, and his election as corresponding secretary of the Royal Institute, of his visit to the Beaux Arts, and the interest European architects take in things American, etc., a very entertaining speech which was loudly applauded.

This was followed by speeches by Messrs. Wallingford, Sturges, Root, Stone, Prof. W. R. Ware (a delightful description of the American school of art at Athens), Robinson, Frederic, Hazelhurst and Bell.

Mr. Bell suggested, and Mr. Hunt moved, and it was ordered spread upon the records, a vote of thanks to Mr. George C. Mason for his very efficient work as secretary of the institute. Speeches were also made by Henry C. Meyer, R. C. McLean, Sidney Smith, W. R. Briggs, E. L. Walter and John Moser. The banquet was in every way a success, and happily closed the twentieth annual convention of the institute. There is a strong probability that the next meeting will be held at Chicago.

Regular Meeting of the Illinois State Association.



THE regular monthly meeting of the Illinois State Association of Architects was held on Saturday, Dec. 4, 1886, President Adler in the chair.

The president suggested that, as the minutes of the previous meeting had been published in THE INLAND ARCHITECT, the reading of them by the secretary be dispensed with. It was so ordered.

The President: The special order of business, as set by the Executive Committee, is the consideration of the bill entitled: "*An act to provide for the regulation and inspection of the sanitary construction and alterations or modifications of buildings in cities and villages, and to secure proper ventilation and sewerage systems for habitable buildings, and declaring certain things to be nuisances, providing penalties and for the issuing of injunctions in certain cases,*" as reported by the special committee to whom this matter was referred. If it is your pleasure we will cause the secretary to read this act as proposed, section by section, and we will act upon it as you wish.

Be it enacted by the People of the State of Illinois represented in the General Assembly:

SECTION 1. It shall be the duty of the owner or other person interested in the contemplated erection or alteration of any building, within the corporate limits of any city or village in this state, in which there is established an officer or department of health, to obtain from such officer or department a blank, entitled "Description of Building," and fill the same in a manner fully describing said contemplated building, with its plumbing and sewerage fixtures, and to submit such description to the said officer or department for examination and approval; which approval shall be granted only upon condition that assurance direct and implied is by said owner or said other person given to said officer or department of health that the sanitary conditions of the building will be, when completed, in accordance with this act. And in case the said building intended to be erected (or extensively modified) be for purposes of habitation, then and in such case a full set of drawings, showing locality and arrangement of plumbing, sewerage and all other sanitary arrangements to be provided in the said intended building, shall by said owner or other person (or the architect or plumber of said owner or person), be submitted to said officer or department for action as above set forth, before any portion or part of the said building shall be commenced or modified.

The President: I will say, on behalf of the committee, that in the committee there was much discussion as to whether it was best to make the procuring of this permit from the health department specially the matter of the architect, or whether it should be left as the duty of the owner of the building. Your committee took the position that, inasmuch as the ground upon which the building was erected belonged to the owner, as the building erected belonged to him, that he was the beneficiary of all that would be done; and if there was any violation of the ordinance by which there would be economy secured in the construction of the building, he would be the beneficiary also; and that in every way he was the one most interested in the good sanitary condition of the building; and that therefore it should be primarily his duty to secure the passage of this act. Of course there is nothing in the act as proposed that will prevent the architect or owner or any other person acting as the representative or agent of the owner of the property, and for obtaining that permit for him; but we thought that, primarily, all responsibility should rest with the owner of the property, as the one to be benefited by the erection of the building. There was some difference of opinion respecting procuring the orders from the health department. Representations from the health department wished to leave the responsibility for securing the permit solely with the plumber or architect. It was our opinion, for the reasons I have just stated, that it would be better to locate that responsibility with the owner of the building, and that he could then select such architect, plumber or other representative to procure the permit for him as he desired; and that, eventually, the responsibility should rest in the proper place.

Normand S. Patton: The question is, when is an architect responsible, and what is his responsibility? Of course if the architect does not superintend the building he cannot tell what the owner would do.

The President: It was for that reason that we concluded to make the owner primarily responsible; that the responsibility of the contractor is only incidental to their employment or agency; that, therefore, they might act for the owner if he requested them to do so, as part of their functions.

Frederick Baumann: Mr. Genung thought that he could get at the architect and the plumber most directly, and that it would be very complicated sometimes to get at the owner, but I think that the law will hold the agent, or the owner himself.

The President: You will see in a future section how we have endeavored to make it impossible to erect a building without proper authority from the head of the department.

SECTION 2. No building permit shall be granted or issued by any officer or building department in such city or village before the approval provided for in Section 1 of this act is obtained (in the manner provided in said section), and presented by said owner or person to said officer or department.

The President: You will see that this section is one by which we intend to make it possible for the health department to control these matters. Before the building department can issue a permit, the building department must see a corresponding preliminary permit issued by the health department, just as it is impossible to procure a building permit from the building department without showing a receipt from the water office for the water to be used in the building. So it will be impossible to secure a permit for a building without first having these preliminary papers. It is by that means we propose to control the owners of buildings.

Mr. Baumann: Otherwise, you see, the permit would be given, and they would go ahead, and nobody would interfere.

SECTION 3. The person executing the plumbing work, or causing its execution, in any such building other than mere repairs, shall (before in any way concealing or allowing such work to be concealed) notify, in writing, the said officer or department of health to the effect and substance that the said plumbing work is then and there in the state of completion, and shall allow such officer or department a full day's time after said notice (not including Sunday) for the proper inspection of, and officially passing upon said work.

O. J. Pierce: It seems to me in regard to that, that it militates against the ordinary manner of doing work. A portion of the work is put in, covered up, and the plastering done, and then the balance is done.

The President: It is always possible, I think, to have plumbing done in such a way that all parts are accessible for inspection. If the passage of this law will cause such modifications of such loose and slip-shod methods as will compel the plumber—and for that matter, the architect—to so arrange the pipes of all kinds that they will be visible and accessible for inspection, it will be a gain to the public at large. It does not necessarily follow that things that are customary are in themselves good. It is customary to do a great many things in a certain way because it is *convenient* to do them so and *convenient* to have them so; but I do not know whether it is necessary or desirable to study the convenience of the plumber, the carpenter, or the plasterer.

Mr. Pierce: It seems to me that calls for a radical change in existing methods—a more radical change than, perhaps, the profession would be willing to commit themselves to; not that I have any personal interest in the matter.

Mr. Baumann: They cannot commit themselves until there are some changes made. Now, for instance, the pipes are made in a very slip-shod way at present, but after this law is passed there will have to be an improvement; that is to the effect that you have got to put a board against the wall, screw on your soil pipes, etc. in a decent manner, and have it in such decent shape that you can show it.

Mr. Pierce: The question arises whether that is in all cases necessary; whether a good serviceable job of plumbing cannot be done in accordance with the existing methods without resorting to these radical changes.

The President: I think that as architects we should be unqualifiedly in favor of everything that will tend to secure better work than is being done now. We are all aware of the fact that where plumbing work is concealed, and particularly where it is permanently concealed, the defects—intentional or unintentional—cannot very well be discovered, nor easily remedied. If we adopt methods by which every part of the plumbing apparatus of the building is accessible (it may cost us considerable money and time), but if we can discover methods by which that plumbing can be made easily accessible to inspection, we will administer an antidote to much slip-shod and careless work, and, certainly, to much rascally work with which we now have to contend.

Mr. Pierce: It certainly will largely increase the cost of the present construction.?

The President: In the case of a building in which the difference would be seriously felt,—say houses that cost anywhere from $2,000 to $5,000 or $6,000; buildings put up for renting purposes, where the plumbing of the entire building, say, costs from $250 to $500,—now the increase in the cost of plumbing in such building, by reason of the improved methods, probably would not be more than ten per cent. We will go further: As the cost of plumbing could not be more than ten per cent, there would be a matter of $25 to $50. In the matter of carpentry it might add as much more. So there would be a difference of from $50 to $100. In other respects there would not be any; but we will say there might be a further addition that would bring the difference from $75 to $150 in a house of that kind. The annual interest on that would be high, say ten per cent; this would be $7.50 to $15. Now, I firmly believe, the difference in the cost of plumbing in a building of that description would be diminished by more than $7.50 to $15 if the plumbing were all so constructed as to be easily accessible.

Mr. Patton: It seems to me that where there is only a back room in addition to the kitchen, where the bathroom is some distance from the kitchen, with the exception of the supply pipes, every foot of pipe would be accessible, or there would be no difficulty in making it so. Every foot of supply pipe, hot and cold water, and wastepipe, and every trap could be accessible and the expense next to nothing.

The President: When I reckoned the additional cost I took into consideration extreme cases. There are very few among us but would possess sufficient ingenuity to try the experiment if we knew it had to be done.

Mr. Pierce: I have some curiosity to know how many architects here present would execute their plumbing in that way.

The President: They should do so.

SECTION 4. Every habitable building hereafter erected in any such (said) city or village, shall have its ground floor covered with a firm stratum of cement and gravel, or asphaltum concrete, not less than three inches in thickness.

Passed with some informal discussion.

SECTION 5. A habitable room in any building shall have one or more windows, of dimensions not less than one-tenth of the area of floor space of each room, and an open space or light shaft shall be established for such window or windows, and shall have an area which, for a three-story building, shall equal not less than one-sixth part of the area of rooms and halls thereby to be aired and lighted. Such minimum size shall receive or have an increase of five per cent for each and every additional story of building.

The President: This means that every room in a habitable building that does not receive its light directly from out-doors shall have a window of a given size—I believe one-tenth the area of the room—and next, that if such windows do not open directly to the outer air, they shall open upon a light shaft, the minimum area of which shall be for a three-story building, not less than one-sixth the total area of the rooms and halls lighted by it; and for a building higher than three stories, it shall be increased in area by five per cent for each additional story.

SECTION. 6. Every skylight hereafter constructed in any such building shall be permanently ventilated through openings or air ducts in or near, and extending at least one foot above its top, and the area of such ventilating openings shall not be less than one twenty-fifth part of the area of skylight opening.

Mr. Pierce: I would ask if that means that the ventilator must always be left open?

The President: Yes, sir; it must always be open.

Mr. Patton: What is the object of it? I should think there would be a good many skylights that would not need any.

The President: I find from my own observation that the tendency in every building in which much air is of the greatest necessity (the residences of the poor), the practice uniformly is that as soon as the cold weather comes to close up everything tight. If there are ventilators in the sides of the skylight, or if there are openings in the sash in the sides of the skylight, they are closed. If there is a pipe ventilators in which there is a damper, the damper is carefully closed, because when they open these it lets the cold air into the room, which takes more coal to warm their places, etc. People will almost always disregard an *ultimate* benefit to be secured for an *immediate* one. They see the advantage of keeping their place warm with a small expenditure for fuel—that is something they can readily grasp; but they forget that by closing the ventilators they invite doctors' bills, loss of health, time, etc., that will amount to a great deal more than the small loss in fuel.

Mr. Pierce: Suppose the light shall be directly connected with the bath room, must that be left open all the time?

The President: It should be.

Mr. Pierce: If that is an open skylight leading from the bathroom and open at all times, I do not see the sense in it.

Mr. Patton: I move that that be amended so as to read clearly as to skylight over ventilating shaft of room.

Mr. Pierce: I would have suggested that the word "permanently" should be stricken out there, leaving the ventilator to be used when required, the same as we use a window.

The President: I think, on behalf of the committee, and also on behalf of the health department with which we are coöperating, I should decline to accept such an amendment, for the reason that the operations of this bill are intended more particularly to benefit the habitations of the poor, where many people are congregated in a small space, and where the necessity for ventilation is not generally acknowledged, and where, unless efforts are made to make such ventilation compulsory, any means of making the opening into the ventilator mentioned in this section anything but permanently *open* would be used to make it permanently *closed*. This matter was fully considered by your committee and by the health department. The observations of the health department are to this effect, that wherever there are ventilators that can be closed in a tenement house, they will be closed and kept permanently closed all winter.

Mr. Pierce: That is undoubtedly the case. But would it be regarded as an evasion of this act to interpose a ceiling light that might be opened or closed between the bathroom, for example, and the ventilating shaft?

Mr. Baumann: It would in my opinion.

The President: It would depend upon circumstances entirely. If that ceiling light were to fit close and snug and tight, so as to render ventilation impossible, it would be considered an evasion of the act.

Mr. Treat: You cannot pass a law to make a man take a bath in a cold room.

The President: The chances are that in houses that are used by single families, where baths are taken, there is a reasonable regard also for the ventilation of the bathroom, and the regulation of the supply of air to the bathroom could safely be left to the occupants of the room.

Mr. Pierce: In other words, they might be allowed to stuff something in the opening or cover it up, if they chose?

The President: It is not likely that the efforts of the health department, to secure a good sanitary condition of buildings, will extend to the inspection of houses where single families reside after they are once occupied, unless such inspections are made at the request of their occupants.

Mr. Pierce: I can see what seems to me an objection to it; at the same time I have no desire to push it, in the face of your manifest wishes, that it shall be allowed to stand. Speaking for myself, wherever I have had occasion to put a skylight over bathrooms, as I do frequently, I always put a register in that I can open or close; for the same reason as that I would not make a window with one light knocked out in order to secure ventilation; but should trust to the intelligence of the occupants to open the window. I do not believe that any compulsory act of that kind would be required in a good class of dwelling houses. However, it might be required in a lower class.

SECTION 7. A habitable room in any building hereafter erected in any such city or village shall not be less than eight feet in height between joists of floor and ceiling, nor shall its floor be located more than three feet below the established inside grade at the line of the lot of land upon which said building is or is to be erected. No such room (except an attic room) shall be established in any present building heretofore erected unless the said room be established and constructed in accordance with the requirements of this act, provided, however, that in buildings heretofore erected, an attic room may be ten inches less (at its lowest point) in height than said eight feet.

The President: In explanation of this last clause, I will say that there is an existing ordinance with reference to heights of rooms in attic stories. For instance: you have a cottage 20 feet wide, you have a room in the middle; now, you would not be compelled to cut off two triangles at the sides if you did not want to, those triangles give so much additional air to the occupants of the room.

A Member: In regard to the location of the floors, the question is whether the limit of three feet is a reasonable one.

Mr. Baumann: Mr. Patton wanted it two feet.

The President: The grade known to the city is curbstone grade.

Mr. Pierce: Then that could mean three feet below curbstone.

Mr. Baumann: But here it says distinctly, "the established inside grade."

It was moved and carried that the words, "inside grade" should be changed to "curbstone grade."

Mr. Pierce: What would be understood by an habitable room? Does it mean any room that is occupied at any time? For example, would a dining room be considered a habitable room?

The President: Yes, sir, it would refer to dining rooms and kitchens as well; and there again, we have got to take care that the public at large as represented will be compelled to rent houses as they are given, and people who build houses for the purpose of renting must have certain restrictions placed upon them.

Mr. Baumann: There are tenement houses where the basement is as much as six or seven feet, even, below the grade or curb, and those basements are arranged for habitable rooms, for which they get $7 or $8 or $10 per month, and have poor people living and sleeping in these rooms.

The President: I built one basement floor as much as six and one-half feet below the grade, if I remember right. I protested against using the basement at all for the purpose of a habitation, but the person insisted on having it so. I wish to say that I have rejoiced greatly ever since in the fact that, although the place has been built two years, he has not had a tenant in his basement, and as the person owning it was my own brother-in-law, I have had abundant opportunity of indulging in the joke at his expense.

SECTION 8. Every water-closet or bathroom hereafter constructed in any such city or village shall have permanent automatic ventilation through an independent air shaft not less than one square foot in its cross section. Such shaft shall extend not less than two feet beyond the surface of roof, and be not below any peak, observatory or other construction upon the roof thereof that may be located within twelve feet of such shaft, and such closet or room shall be lighted by a window, either in an exterior wall of the building, or in a light shaft constructed for the purpose, or by facing a general light shaft or any adjoining room which said window shall (in said last mentioned case) be stationary.

S. A. Treat: That calls for a flue of 144 square inches?

Mr. Patton: That is too far.

Mr. Baumann: I have made them that size, and have had to put in a kind of flap, so that they could regulate it.

The President: We had a great deal of difficulty with reference to this with the representatives of the health department. They insisted on making this flue much larger, and it was with great difficulty that we got them to assent to having the flue so small. We all know that a small flue would probably answer just as well.

Mr. Pierce: If our legislature got hold of that they would cut it down to one-quarter of a square foot.

The President: They might, and they might not; the action of the legislature is as uncertain as that of a petit jury, or the supreme court.

Mr. Baumann: I think I should move to cut this down to one-third; four by twelve is enough.

Mr. Patton: How would it do to place the size of this ventilator directly proportionate to the size of the room, just as the size of the light shaft is made proportionate in size to the room, and to instruct the committee to modify that act in such a manner as to establish a definite proportion between the size of the water closet and bathroom?

Mr. Baumann: I think if we specify a minimum, and then let every architect who comes there to do it change that to satisfy himself, there would be no objection. Bathrooms are generally small, anyway. I would have it four by twelve, and let the architect take care of the rest of it. I think it is better. This law is a somewhat precarious one. I know that cases will come up where you don't know where you are; you can not foresee what will come up.

The President: It would be very strange if we could make a law that would cover every case. It is moved and seconded that the section which has just been read be so amended that the minimum size of the ventilating flue required for a bathroom or water closet, be fixed at 48 square inches instead of one square foot, as in the report of the committee. Carried.

SECTION 9. No privy vault of any kind shall hereafter be constructed or allowed by the owner of any lot or lots of land, situated in any such city or village, to remain in any building, or upon any lot of land adjacent to a street or alley on which there is a public sewer established in front of or adjacent to said building or lot.

Passed without discussion.

SECTION 10. No alterations, additions, or modifications which will change or alter any or all of the sanitary conditions or arrangements in any building erected or located in any such (said) city or village, shall be made, except upon prior express approval, in writing, of the said officer or of the said department of health. Nor shall any additional structure be erected upon any lot of land situated within such city or village upon which there is already a building erected without such approval, and a special permit in writing from said officer or department.

Passed without discussion.

SECTION 11. All sewerage drains hereafter laid in such city or village shall be laid with a uniform decline of not less than one-tenth of an inch to the foot, and there shall be constructed by the owner of any such building a trap and adjacent air inlet in connection with the drainage system of each building, where such drainage system is located, either wholly or in part without such building, said air inlet shall be located outside of said building, and shall be kept clean and unobstructed. The entire sewerage systems in any such building hereafter erected shall be so constructed as to allow ready and complete inspection at the time of its completion.

Mr. Pierce: There is no allusion made to the size of the sewerage.

The President: It is difficult to determine that, in a city like Chicago, at least. There are, also, regulations as to that, and it is probably unwise to fix any dimensions. The danger in all such cases is that people are more apt to make sewers too large than too small. At the same time, I think it is better to let that matter regulate itself, leaving it to the general intelligence of those planning the sewerage. The conditions vary so much that we could not make specific regulations.

SECTION 12. Metal sewage drains and soil pipes, if not enameled or made of non-corrosive material, shall be covered inside and outside with a coat of asphaltum, and all their joints and connections shall be made absolutely airtight by means of molten lead or similar metal, or by means of molten asphaltum, either with or without an intermixture of sulphur.

Passed without discussion.

SECTION 13. Every soil and every wastepipe hereafter constructed and placed as such in any such city or village, shall be of cast-iron, or brass or porcelain, and when such pipe is put up for use, it and the joints thereof shall be capable of sustaining an internal pressure of not less than fifteen pounds to the square inch of surface.

The President: You will note that this is an important section, and is intended to take the place of a long array of clauses with reference to the

manner in which joints were to be made, etc. We took it for granted that if we were to prescribe a test of reasonable severity, that it would insure us pipes that would be secure against leakages from ordinary causes. It is not at all likely that there will ever be a greater pressure than fifteen pounds to the square inch.

Mr. Pierce: Was it intentional to rule out lead as a material for use in soil and waste pipes?

The President: Yes, sir. It is probably needless to explain the reason why.

Mr. Pierce: I should be disposed to question it.

The President: There would probably be an exception made there for short lateral branches and connecting pipes.

Mr. Pierce: I was not aware that sanitarians had condemned the use of lead pipes.

The President: It is not necessary for sanitarians to do it; they condemn themselves. Go into any house where there is a lead soil or waste pipe, of any height, that has been in use but a few years, and you will find it bagged and warped and twisted and torn apart.

Mr. Pierce: Does not that depend very much on the weight of the lead used? I remember cases where they have stood fifty or sixty years, and when taken out were perfectly good.

The President: Those cases are very exceptional. It has been found, in almost every case of that kind, in places where they are exposed by reason of their use for carrying hot water or by reason of the warming of the building by heating apparatus to various temperatures and to any considerable extent, that it has been found impossible to so fasten them as to prevent their tearing away from their fastenings, etc., and, furthermore, there seems to have been, in many instances, a mechanical action from the pipe itself.

Mr. Baumann: The plumbers are all against lead pipes.

Mr. Pierce: I beg your pardon, sir; but I find that, while they are not all in favor of it, while plumbers are not unanimous in its favor, I find that some of the oldest plumbers approve of it heartily. My only question is as to whether that is a point that is so thoroughly settled that it should be ruled out. Personally I do not believe it is.

The President: It is not altogether a question of what the plumbers think, but I think a sufficient number of cases of the complete failure of lead soil and wastepipes come under the observation of every one of us to make it proper that we condemn their use.

Mr. Baumann: The plumbers are interested in the use of lead, that is where they make their money; but at the same time they are against it.

Mr. Pierce: This covers wastepipes as well as soilpipes?

The President: Yes, sir. I should think it would be proper, perhaps, to insert the clause "except short lateral and connecting pipes; and permit those to be made of lead. Their use is in places where it is difficult to use other pipe. Where they are sufficiently short and in plain sight the difficulties arising from the expansibility and tractability of the lead are not of so much importance, and do not produce such disastrous effects.

If no objection is raised the committee will consider itself instructed to add such a clause to this section.

No objection being raised it was so ordered.

SECTION 14. The in-take ends of all drains and their branches in any building shall be curved to correspond with an inner radius of not less than twelve inches, so as to properly meet the horizontal drain and the perpendicular waste and soil pipe, and form an airtight connection with them, and there shall be near the lower end of such curved piece a hand-hole with airtight covering.

Passed without discussion.

SECTION 15. The use or construction of any kind of pan water-closet in any building in such city or village is hereby declared to be a nuisance, and the use thereof is hereby prohibited. All water-closets used in any story of such building or buildings above the basement story shall be so constructed as to be connected with and flushed by means of a tank or tanks.

Mr. Cleveland: I saw an old plumber the other day, and he thought the pan closet the best water-closet used.

Mr. Gay: I have been at a meeting of the plumbers, and they have agreed among themselves, actually, that it is the best closet, and have put them in their own homes.

SECTION 16. No chimney flue of water leader-pipe shall be used for conveyance of exhaust steam or for ventilating soil or wastepipe.

Passed without discussion.

SECTION 17. All sewerage and plumbing work in all buildings hereafter constructed in any such (said) city or village, shall be executed in a thorough manner satisfactory to the said officer or department of health, and all drains laid in any such building, shall be laid with the joints thereof made capable of resisting the water pressure resultant from filling the said pipe with water to their in-take ends, and it shall be the duty of said officer or department as the case may be, to make suitable and efficient tests as to the quality of all such work, and to test all soil and wastepipes when put up for use in any building, by subjecting them to an internal pressure of fifteen pounds to the square inch, and to test all drains by filling them with water to their in-take ends.

Mr. Baumann: I would say that there was a good deal of discussion in regard to this, and it was even proposed to specify how the drain should be laid, covered, etc., but that was considered to be unnecessary. In regard to this particular clause, there is to be a test made by the officer if he wants to do it, and that test will insure the tightness of the joints of all drains that are laid; and if they do not make the test and have the joints in tight, of course it is their fault.

The President: We thought that was the best means of overcoming the difficulties that we had to encounter. I presume every member of the committee and every inspector of the board of health with whom they had consulted, had some panacea for laying drainpipes that would make them tight, but it was discovered that each individual method was good only if the work was done right; and we came to the conclusion that if we were to leave the method of making these pipes tight to the person doing the work, and only insist upon a test that would insure their being tight, that we would be doing all that was necessary for the public.

SECTION 18. Every water-closet, sink and other plumbing fixture placed and provided in and for the use of any building hereafter erected in such (said) city or village, shall be connected with the sewer and provided with efficient trap, sufficient to prevent at all times the passage of air through the pipes from the sewer to the said fixtures, and no trap shall be placed and constructed at the foot of any water, soil or ventilating pipe, and said plumbing or plumbing fixtures and pipes shall be so constructed as to permit at all times, without obstruction, the passage of a current of air from the air inlet mentioned in Section 11 of this act, below through all pipes last mentioned.

Passed without discussion.

SECTION 19. Overflow guards or safes to any fixture or fixtures, and all refrigerators, shall have independent wastepipes, and shall not be connected with the drainage system.

Passed without discussion.

SECTION 20. No grease-receiving basins or cesspools of any kind shall be constructed and placed for use within the walls of any habitable building hereafter erected within any such (said) city or village, nor shall any grease-receiving basins or cesspools heretofore constructed in any habitable building in such (said) city or village, be allowed to remain thereon or therein longer than thirty days after this act shall go into effect. In all cases when the area of a building erected or to be erected in such (said) city or village, shall occupy the whole of its lot, such grease-receiving busins shall be constructed under the sidewalk or underneath the surface of the alley, if any such there be adjoining the premises upon which said building is situated.

Passed without discussion.

SECTION 21. No lead pipe shall in any building hereafter erected in any such (said) city or village, be connected with an iron pipe except by means of a metallic ferrule or other means expressly approved by the said officer or department of health.

Passed without discussion.

SECTION 22. No duct or flue for admitting air to an apparatus intended for warming, shall be concealed below the concrete under the lowest floor of any building.

The President: This clause is an attack upon the method of securing a fresh air supply.

SECTION 23. Said officer, or any duly authorized officer of the said department shall, so far as may be necessary for the performance of his or their said respective duties therein, have the right to enter at any and all reasonable hours in the daytime any building or premises in such (said) city or village.

Passed without discussion.

SECTION 24. Any person violating any of the provisions of this act, or any said owner or officer who shall neglect or refuse to comply with any of the provisions of this act, shall be deemed guilty of a misdemeanor, and upon conviction thereof in any court of justice, shall be fined not less than two hundred and fifty dollars, nor more than five hundred dollars; recovery to be had in the name of and for the use of the city in which the offense shall have been committed or incurred.

Passed without discussion.

SECTION 25. Any person convicted and fined as mentioned in Section 24 of this act, who shall for the space of twenty-four hours next ensuing after being so found guilty by said court, fail to comply with the requirements of this act, or any provision or requirement thereof, shall be deemed guilty of a misdemeanor, and upon conviction thereof before any court of justice, shall be fined in a sum of money not exceeding five hundred dollars.

Mr. Treat: I move that it be changed from twenty-four to forty-eight hours. Carried.

SECTION 26. The Circuit Courts of this state and the Superior Court of Cook county are hereby authorized and required to issue, upon due application of any officer or department mentioned in Section 1 of this act, or of his or its duly appointed agents, in the name of said officer or department, an injunction restraining or preventing the use and occupation of any such (said) building or structure which is or shall hereafter be erected, altered or maintained, or the sewerage system of which shall be constructed, altered or maintained (or any portion thereof) used in violation of this act, or any of the provisions thereof.

Passed without discussion.

SECTION 27. Any and all laws of this state in conflict with this act are hereby repealed.

Passed without discussion.

The President: Mr. Treat desires that an informal vote of this meeting be taken, for the purpose of ascertaining the sense of the members of this association with reference to the matter of underground air ducts, that is, he wishes to ascertain if any of the members, and if so, how many of them, are in favor of the use of underground ducts.

Mr. Randolph: I will say that for eleven years I have tested this matter, and the best thing in the way of an air duct is a sewer-pipe under ground. If I had an abundance of money, I would not take air into a building in any other way. This is from an experience with all kinds of wastepipes.

Mr. Treat: A man would not be supposed to build an air duct under a building so low that it would be filled with water part of the time?

Mr. Randolph: That can easily be remedied: the pipe can easily descend upon the outside, where you can open it, and see if there is any moisture there.

Mr. Pierce: In my own practice I have been using glazed tile for the air inlets generally.

The President: Those who are in favor of underground air-ducts will please signify it by rising.

The vote was tied.

Mr. Randolph: The consideration of this bill, I think, would be well to make the special order of business for our next meeting. I presume there is no absolute necessity of taking action before that time. That will be the first week in January, and the legislature does not meet until January. I have taken a part in this debate, although there have been several questions come up that I am not satisfied about, and I would like to read the bill more carefully. I think it would be well to make it the special order for next meeting, and state the provisions of the bill.

The President: It was thought that the publication of the bill in THE INLAND ARCHITECT, *Sanitary News* and *Building Budget* would have brought it to the notice of all of the members of the association, and would have awakened a sufficient interest and been read by all the members, and that a larger representation would have been present at this meeting. It is a matter of sufficient importance that it will perhaps not be wasting the time of this association if it is made the special order of business for another meeting, and if the attention of the members is particularly drawn to that fact by a circular issued by the secretary, and, perhaps, it might not be amiss to invite representatives of the Board of Health, perhaps of the building inspector's office, and perhaps also of the sewerage department at our next meeting.

Mr. Baumann: The plumbers, too?

The President: You might invite the master plumbers to be represented here by a committee, also the association, which, I believe, has been formed of sewer builders.

Mr. Baumann: Yes, they are in a fight—the plumbers and sewer builders—and if we want any assistance against the plumbers, we can get it.

The President: I do not think it would be right if we were to ask these technical publications, THE INLAND ARCHITECT, *Sanitary News*, etc., to again publish the text of this bill. The amendments made at this meeting were so few that it would be trespassing on their good nature.

Mr. Randolph: I would suggest that the secretary send a circular referring to these publications.

The President: If there is no objection I will declare the suggestion of Mr. Randolph the sense of the meeting: That this bill be made the special order of the next meeting of this association; that the secretary be requested to call the attention of the members particularly to that fact, and to the publication of the bill; that the secretary request the Master Plumbers' Association, and Master Sewer Builders' Association, to each send a committee to represent them; and also to notify the health department, the building department, and the sewerage department of this city.

Mr. Baumann: Will the secretary send to the sewer men and the plumbers three copies of this bill?

The President: They will all see it. The secretary might state in his notice the date of the next meeting of this association. I do not know but we had better have two meetings in this month. The Executive Committee can fix the date of the next meeting, but the circular had better be sent out. If there is no other business before this meeting I will declare it adjourned.

The meeting adjourned subject to the call of the Executive Committee.

Association Notes.

MASTER CARPENTERS AND MANUFACTURERS OF WOOD BUILDING MATERIALS ASSOCIATION.

The regular meeting of this association was held Thursday evening, December 9, President Frost in the chair. In the absence of Secretary Clark, Mr. Fred S. Hunt, of THE INLAND ARCHITECT, was appointed secretary pro tem. Minutes of meeting held November 16 read and approved.

Mr. Mavor, Chairman of the Membership Committee, reported one application for membership, that of the Malcom McDonald Lumber Co.

Mr. McKay moved that the secretary be instructed to cast a ballot electing the company to membership. Motion seconded and carried.

Mr. Mavor reported the resignation of Messrs. Hintze & Baker.

It was moved and seconded that the resignation be accepted and placed on record. Carried.

Mr. Grace, chairman of the committee appointed at the meeting of August 3 to draft resolutions in regard to form of specifications, contracts, etc., reported that the committee had looked into the matter thoroughly, and recommended that no action be taken at present.

Mr. McKay moved that the report of the committee be accepted and the committee be discharged. Motion seconded and carried.

Mr. Blair moved that the report of this committee and its unfinished work be referred to the Committee on Code of Working Rules, etc. Motion seconded and carried.

Mr. Grace, as chairman of the committee appointed November 16 to confer with committees of all other contractors' associations connected with the building trades, for the purpose of adopting some code of working rules for the coming year, etc., reported that the committee had seen Mr. Geo. C. Prussing, President of the Builders' and Traders' Exchange. Mr. Prussing had called a meeting of the board of directors of his association for the purpose of appointing a committee to confer with the committee from this association. Mr. Grace said this meeting was to be held December 11. Nothing more could be done until joint action could be taken, and he asked that the committee be given more time, which was granted.

A very interesting discussion of the eight-hour question, the apprenticeship system, and state law regulating the same, occupied the remainder of the evening.

CANADIAN SOCIETY OF CIVIL ENGINEERS.

The efforts made in the spring to form a society of civil engineers for the whole Dominion of Canada has been successfully consummated at a meeting held in Montreal on the ninth instant. Delegates from the local centers of Ottawa, Toronto and Montreal were present, each with their draft constitutions. After a lengthened and harmonious session, all the details were adjusted and a provisional committee appointed. It is intended to send a copy of the constitution, with a request note to join the society, to every engineer who has expressed his willingness to do so. Over three hundred are known to be favorable to the society.

The ballot papers for officers will be sent out about the 12th of January.

The Provisional Committee are: from Ottawa, Messrs. T. C. Keefer, C. M. G., chairman, H. F. Perley, W. P. Anderson, R. Surtees; from Montreal, J. Kennedy, P. A. Peterson, P. W. St. George, Professor Bovey; from Toronto, Colonel Gzowski, A. D. C. to the queen, Kinas Tully, W. T. Jennings, Alan Macdougall. Mr. Macdougall is secretary.

BUFFALO ARCHITECTURAL SKETCH CLUB.

The draughtsmen of Buffalo, N. Y., have formed a sketch club, the *personnel* of which compares favorably with any in the country. It is composed of about thirty members. Its officers are: F. R. Fuller, president; F. E. Townsend, first vice-president; Williams Lansing, second vice-president; J. S. Rowe, secretary; F. W. Fisher, treasurer. The association meets the second and fourth Wednesday of each month, and holds informal meetings on the intermediate Wednesdays. The constitution and by-laws of the club are modeled largely after that of the Chicago Architectural Sketch Club, and their general procedure is similar, papers being read and club competitions and sketching occupying the regular meetings.

CHICAGO ARCHITECTURAL SKETCH CLUB.

The meeting held Monday evening, December 6, was called to order by President Harry Lawrie. About thirty members were present.

Immediately after the reading of the minutes of the last meeting, at which Mr. Lawrie was unanimously reëlected to the presidency of the club, he arose, and in a very appropriate speech, resigned his office.

Vice-president Geo. Beaumont, upon taking the chair, spoke a few minutes upon the subject of Mr. Lawrie's resignation, expressing the deep regret of the club that Mr. Lawrie was so soon to leave the city, and that he was obliged to tender his resignation.

Mr. Carpenter moved that Mr. Lawrie's resignation be accepted with regret, and that he be made an honorary member of the association. The motion was unanimously carried, and a look of regret was plainly visible on the face of each member.

A motion was made to present ex-President Lawrie with a gold membership badge, but as the club has not yet adopted an official badge, the motion was tabled.

A communication from O. Enders, stated that having associated himself with Mr. Lawrie, he was about to leave the city for Omaha, therefore he asked a leave of absence for one year. Mr. Enders said: "I have no desire to sever my connection entirely with this club. The meetings have been to me a source of enjoyment and education, and at some future time I hope to again associate myself with you."

Mr. Ender's request was granted.

The paper of the evening was by Mr. W. B. Lord, entitled the "Formation of Building Stone."* The paper was an able one, and was very well received, Mr. Lord exhibiting, by way of illustration, an excellent collection of specimens of building stones.

After some discussion of the subject by the members, the meeting adjourned.

Later, it was decided to give a farewell supper in honor of the departing ex-president, Harry Lawrie, at Werner's, Friday evening, December 9.

This farewell supper given Mr. Lawrie was participated in by fourteen members, including Harry Lawrie, Oscar Enders, C. A. Kessell, J. H. Carpenter, O. C. Christain, W. B. Lord, H. W. Culbertson, F. L. Linden, F. O. Fraenkel, R. C. McLean, Robert B. Williamson, C. F. Jobson, E. J. Wagner, and R. E. Schmidt. The supper was a credit to the caterer, and thoroughly acceptable to the guests, judging by the speeches made and the general good-fellowship which held the latter around the table for several hours. The general theme in the response to toasts was regret at losing so active and valuable a president, mingled with hearty good wishes for his success in his new location. The regrets of the club were also divided with Mr. Enders, who leaves with Mr. Lawrie. Mr. Enders, while one of the youngest, is looked upon as one of the most promising members of the club. An indefatigable worker, accurate and rapid, his success as a draftsman and architect will be watched by the many friends he has made both in and out of the club, with interest and confidence.

Mr. Carpenter spoke at length of Mr. Lawrie's valuable services to the club. Mr. Lawrie, of the founding of the club through Mr. Carpenter's efforts, and the coöperatson of THE INLAND ARCHITECT, these speakers being followed by Messrs. Enders, McLean, Kessell, Christain, and others. Mr. Lawrie presented his photograph, with his authograph, to each guest, as a memento of the evening.

ART STUDENTS' LEAGUE OF NEW YORK.

Professor Russell Sturgess kindly gave the members and students of the Art Students' League an interesting talk on bronzes on Saturday evening the fourth instant. The period covered was from the early Greek discoveries down to the later renaissance. The lecture was illustrated by stereopticon views and the Professor's complete collection of photographs.

BUFFALO SOCIETY OF ARCHITECTS.

At a meeting of the society it was decided to tender an informal reception to John W. Root and Sidney Smith, delegates to the American Institute, and R. C. McLean, of THE INLAND ARCHITECT, whom they invited to stop over at Buffalo on their way to attend the Institute convention at New York. At a dinner tendered these gentlemen were C. K. Porter, president, and W. W. Carlin, secretary, of the Buffalo society; Mrs. Louise Bethune, W. R. Waite, R. A. Bethune and others. The city hall and jail was inspected, and considerable time was spent viewing the Y. M. C. A. library building being erected by Cyrus L. W. Eidlitz, of New York. The armory building of the Seventy-fourth Battalion, designed by architects R. A. & L. Bethune, of Buffalo, was inspected under the most favorable circumstances, the occasion being a reception and dress parade tendered the county supervisors by the militia. The drill hall is about 220 by 120 feet, with a trussed roof spanning the entire space to outside walls; a spacious gallery at one end, and reception rooms opening from it, are one of the special features in the plan. Small drill rooms, company rooms, a rifle range, etc., complete the plan of one of the finest and most commodious armory buildings in the country. The acoustics were noticeably perfect, there being no perceptible echo to music or marching. The visitors continued their journey after two days' sojourn, having heartily enjoyed and appreciated the hospitality extended by the members of the Buffalo Society of Architects.

* This paper will be published in a future issue.

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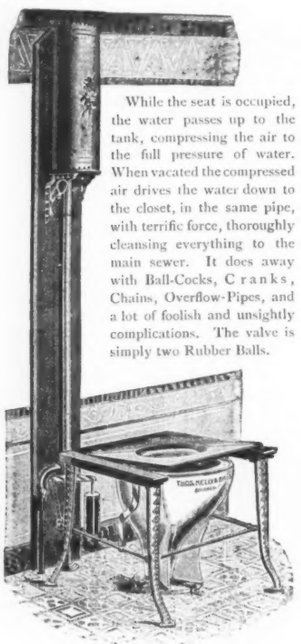

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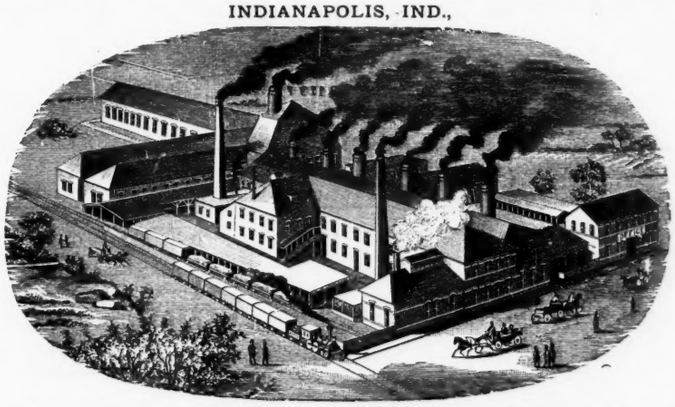

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Brickmason (Front)	3 00	8 hrs. 4 00	4 50	5 00	4 00	4 00	5 00	.....	5 00	5 00	5 00	5 60	4 00	4 50	5 00	5 00	4 25	2 50
Carpenter	2 50	2 50@2 75	2 50	1 75@2 25	2 50	2 75	3 00	3 50	2 75	2 50	2 50@3 00	2 50	2 25	2 50	2 40	2 50	2 50	1 75
Cabinetmaker	.....	.....	.....	1 75@2 25	.....	.....	.....	.....	3 00	.....	2 50	.....	2 50	.....	2 50	.....	2 25	.....
Finisher	.....	3 00	3 00	1 00@1 75	.....	.....	3 00	4 00	3 00	.....	3 00	.....	2 75	.....	2 75	.....	2 25	.....
Gasfitter	3 50	2 50@3 00	3 25	2 00@3 00	3 00	3 50	.....	8 00	5 00	.....	3 00@4 00	3 00	3 00	2 50	3 50	2 25	2 50	2 75
Laborer	1 25	1 60@1 76	1 50	1 50	1 50	1 75	1 25	2 50	1 50	1 00	1 75@2 00	1 50	1 25	1 60	1 25@1 50	1 25	1 50	1 00
Painter	2 00	2 25@2 50	2 50	1 50@2 50	2 50	2 50	.....	2 50	2 50	2 50	2 50@3 00	3 00	2 00	2 75	2 50	2 25	2 50	1 75
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Plasterer	3 00	8 hrs. 3 50	3 50	3 25	3 00	3 00	.....	4 00	4 00	2 25	4 00@4 50	2 66	3 00	3 00	4 50	4 00	2 50	1 75
Plumber	3 50	3 50@4 00	3 50	2 50@3 00	4 00	4 00	.....	8 00	4 00	.....	5 00	3 50	3 25	.....	3 50	2 50	2 75	3 00
Stonemason	3 00	4 00	3 50	3 25	3 00	3 75	.....	4 50	3 50	.....	4 50@5 00	3 00	2 75	3 00	4 00	3 50	2 75	.....
Carver	5 00	4 50@5 00	5 50	5 00	.....	.....	.....	.....	4 00	.....	5 00	.....	4 00	.....	3 00	.....	.....	.....
Stonecutter	3 50	3 75@4 00	3 50	3 50	2 75	.....	.....	9 00	4 00	.....	5 00	3 50	3 00	.....	4 00	4 00	3 00	.....
Stonesetter	3 00	4 00	4 00	3 50	3 50	.....	.....	5 00	4 00	.....	4 00	4 00	2 50	.....	4 00	4 00	2 75	.....
Roofer (Tin)	2 75	2 75	2 75	1 25@2 25	2 75	3 00	.....	3 00	2 50	.....	2 50@3 00	2 50	2 25	.....	2 50	2 50	2 25	2 00
Slater	3 00	3 00	3 25	1 75	2 50	2 75	.....	.....	3 50	.....	.....	3 00	2 50	.....	2 50@3 00	3 50	2 50	2 00
Stairbuilder	3 00	3 25@3 75	2 75	2 75@3 00	3 00	4 00	.....	.....	2 50	.....	5 00	2 50	3 00	3 00	3 00	3 00	3 00	2 50
Steamfitter	3 50	3 50	2 50	2 50@3 00	3 50	3 50	.....	8 00	3 50	.....	4 00@5 00	2 50	2 75	.....	3 50	2 50	2 50	3 00

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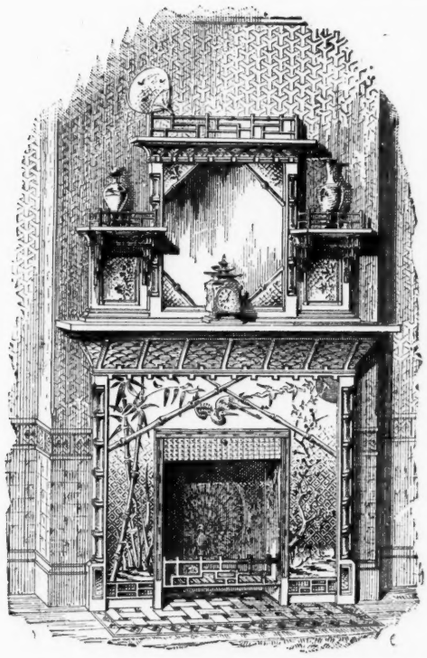

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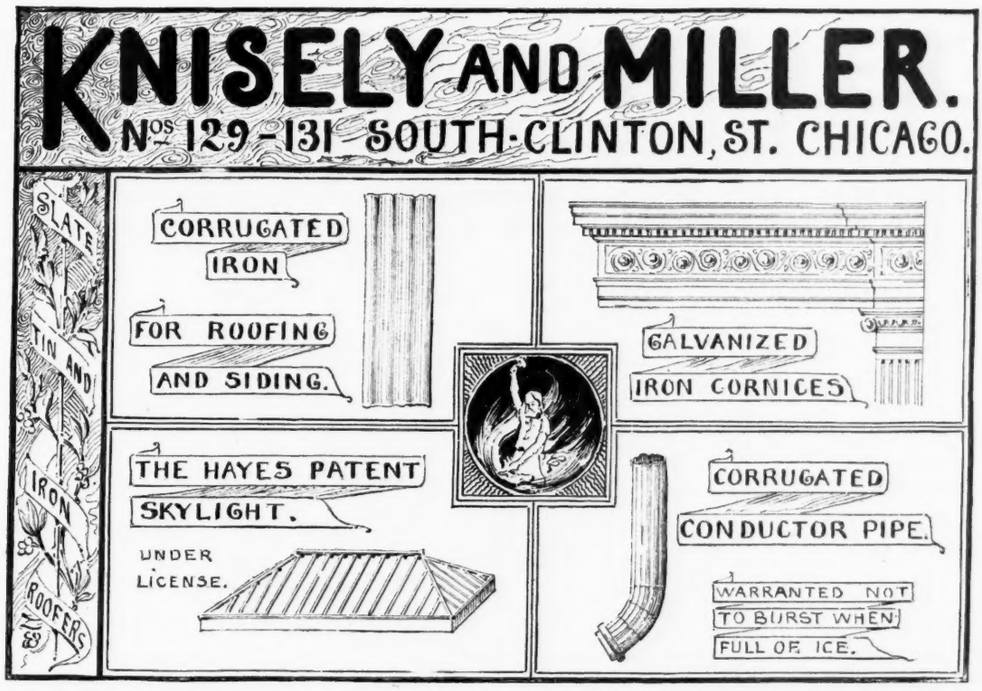

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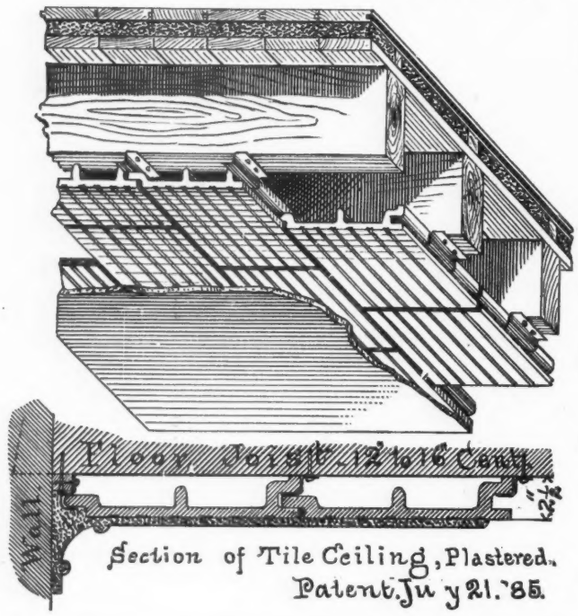

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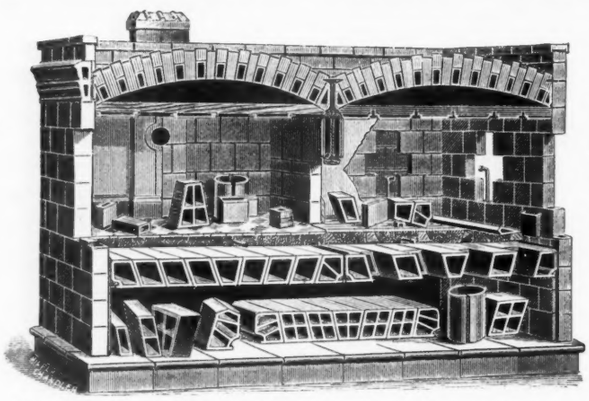

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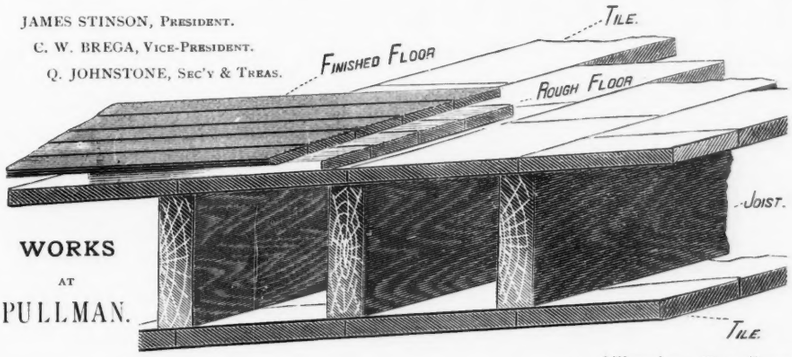

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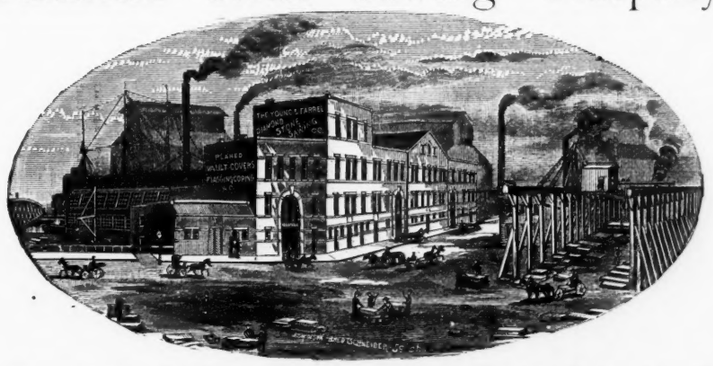

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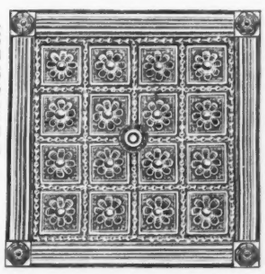

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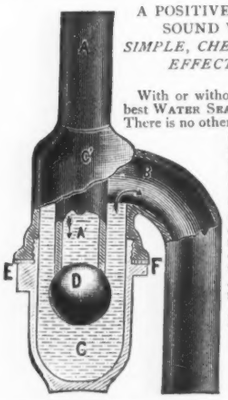

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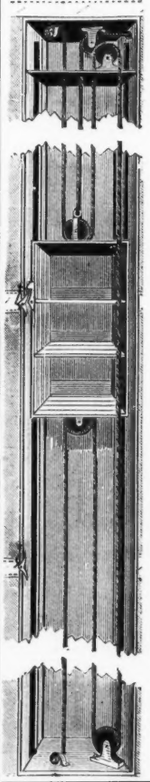

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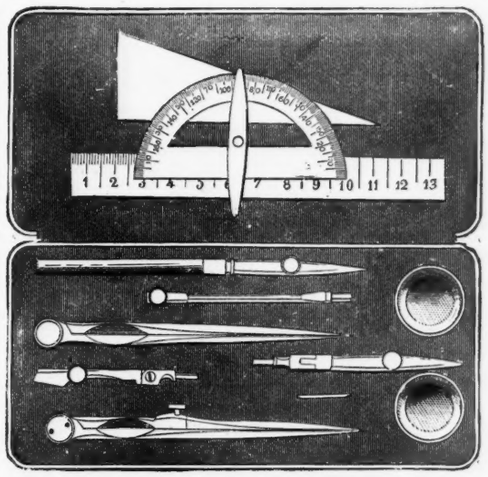

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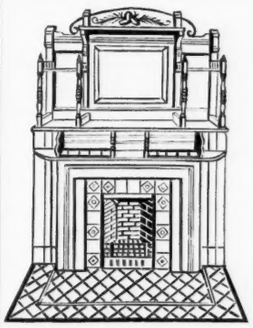

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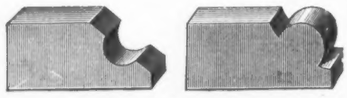

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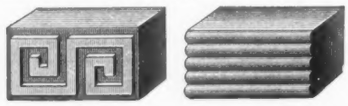

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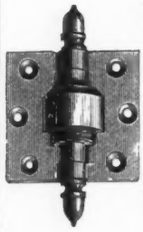

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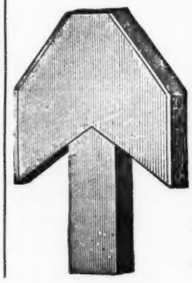

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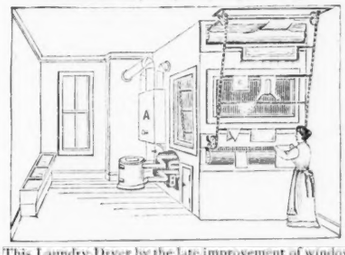

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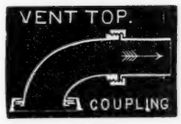

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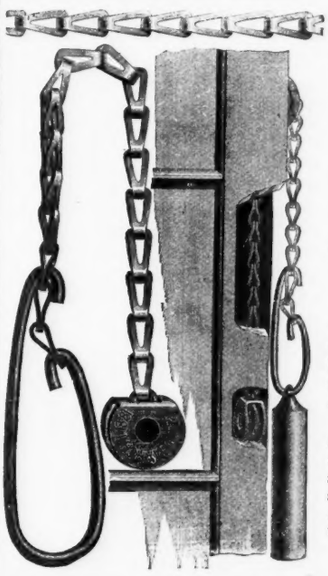

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" " molded	25 00@100 00
Perth Amboy Buff	50 00
" " mottled	50 00
Standard Purington & Kimbell	24 00
Indiana pressed, Purington & Kimbell	16 00@ 22 00
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(Quotations furnished by Lockwood & Kimbell.)

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" molded	50 00@200 00
Trenton pressed	45 00
" molded	65 00@200 00
Philadelphia pressed	50 00
" molded	65 00@200 00
Baltimore	55 00
Milwaukee	25 00
Zanesville	30 00
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Toledo, red common	12 00
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Plaster of Paris	2 00@ 2 50
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Planed	40@ 1 00
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Brown Connecticut	1 50
Amherst	60@ 75
Berea	55@ 65
Potomac Red Sandstone	1 25
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Ash Steps	40 00@ 45 00
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⅝ in	26 00@ 30 00
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Yellow, Chrome	18@	25
Green, Chrome	12@	20
Green, Paris	20@	35
Black, lamp	8@	30
Blue, ultramarine	16@	35
Putty		3
Whiting (dry)	1@	2
Paris white (English)	2@	3
Litharge (American)	6@	10
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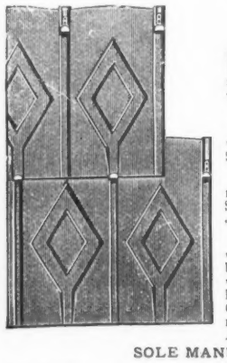

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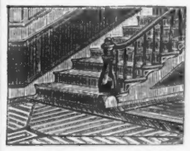

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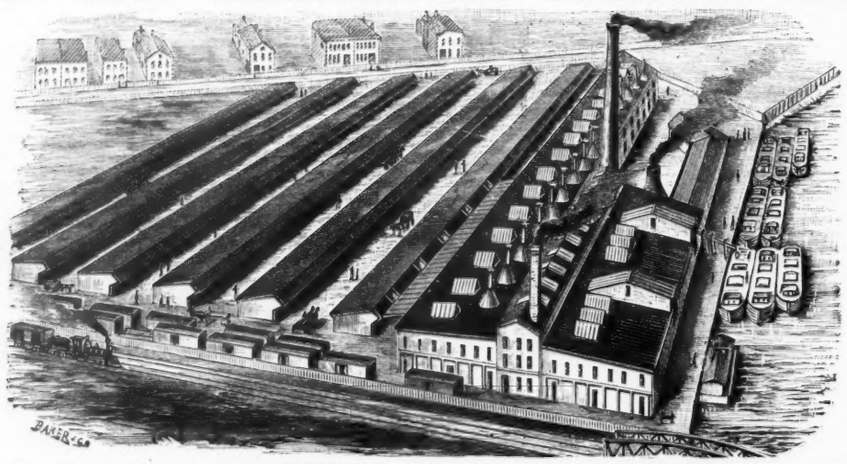

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EIGHT state associations hold their annual meetings during the month of January. The Architectural Association of Minnesota met at the West Hotel, Minneapolis, on the 4th, and the Nebraska State Association of Architects at Omaha on the 5th instant. The Missouri State Association of Architects will meet at the St. Louis, on Tuesday, the 11th instant. The programme outlined by this latter association, which is very important, is printed elsewhere, and the meeting should be attended by every member in the state. The Architectural Association of Iowa will meet at Des Moines on Wednesday, the 12th instant. In the third week of the month will occur the meeting of the Kansas State Association of Architects, at Topeka, on Tuesday, the 18th instant, and that of the Association of Texas Architects, at Austin, also on Tuesday, the 18th instant. The Association of Ohio Architects will meet at Cincinnati, on Thursday, the 20th, and have outlined a strong programme, which includes discussions on several important subjects. In the fourth week the first annual meeting of the Indiana State Association of Architects occurs at Indianapolis, on Thursday, the 27th instant. Every architect in regular practice in each state should make a special effort to attend his state meeting, and, if not already a member, should send in his name for acceptance. The state statutory law, formulated a year ago, will be discussed, and a committee will be placed in charge of looking toward its passage in each state of which the legislature meets this year.

IN the formation of state associations of architects in allegiance with the Western Association, the constitution and by-laws of the latter usually serve as a model. This is a good form, but a little variety is sometimes desirable, and as the preamble to the constitution of the "Société Académique d' Architecture," of Lyons, France, is admirably concise and complete, we commend it to our readers.

The objects of the Academic Society of Architecture, of Lyons, founded in 1830, are: To provide a bond of union among the architects of Lyons and vicinity. To extend to its members the aid necessary to protect their professional interests whenever it considers such to be for the general good. To conserve (*veiller à*) the dignity of the profession. To encourage those studies and investigations which contribute to the progress of architecture and the kindred sciences. To establish public competitions for the encouragement and reward of young architects, or draughtsmen, or mechanics employed in the building trades.

The Italian architects and civil engineers unite to form an association styled "Società degli Ingegneri e degli Architetté Italiani," with its headquarters at Rome. Its preamble will be interesting to our readers, in connection with that of the French architectural society, of Lyons, above.

The aims of this society are: To promote, by means of discussion and publication, the progress of the sciences relating to the constructive and decorative arts. To promote the study of technical questions of public utility. To guard the professional interests of engineers and architects. To provide, by gradual contributions, within the resources of the society, a fund for the aid of those members of over twenty years' standing who from inability to continue the exercise of their profession may be in need of assistance.

We do not suggest that the language of our state constitutions and by-laws could be bettered, but those of the foreign societies are certainly worthy of our consideration, and contain suggestions that are valuable.

BUILDERS are looking with considerable interest toward the convention of the master builders of the United States, which will be held at Boston, on the 10th, 11th and 12th instants, called for the purpose of forming a national association of the master builders of the United States. In response to a circular letter issued to the different builders and traders exchanges of the country, each association has appointed delegates, who will attend the meeting at Boston and report back to the several bodies they represent. From the general tenor of a circular recently issued by the Boston

master builders, it would seem that the object will be to secure a union of the master builders to procure a concerted action, especially in the opposition of the demands of unions among the building trades. If this be the object it will not, and certainly should not, prove a success. It will not because the interests of members in different parts of the country are so diverse that an aggressive policy would not be universally supported. It should not, because to oppose trades union by trades union will only lengthen and embitter the conflict now going on. The success which unions of every description have met with in the past few years, has been almost entirely due to the prosperity of the country; the first year of depression will do more than all the opposition and lockouts that can be instituted to show men that honest, hard work will advance them more than any union can.

BUT this meeting can result in great and permanent good if the formation of the national body is properly directed. Let the constitution and principles laid down be broad and liberal. Let the work outlined be in the direction of improvement in methods, looking into the statutory relations of the building trades to the capital they dispense for labor; into the condition of their workmen and their opportunities for perfecting themselves as workmen. These and a hundred and one other questions can be profitably discussed and acted upon. If this is the direction taken by this national association of master builders then it will succeed, and with judicious and conservative management will save the next generation in this country from what it is so clearly tending today, a generation of botch workmen. The skilled mechanic in the building trades is becoming more scarce each year. Those who are skillful are almost without exception of foreign birth and training. It lies largely with the master builders to correct this and aid the manual training schools to educate a generation of skilled workmen.

THE annual meeting of the Chicago Builders and Traders' Exchange, which occurs on the 17th instant, commences the fourth year of its existence. The prosperity of the exchange has been as phenomenal as that of the building interest which it represents, and it now has 498 members representing the leading contracting and building material firms of the city. At a recent meeting called to appoint a nominating committee to prepare a ticket for the coming election of officers, Mr. George C. Prussing stated that for business reasons it would be impossible for him to serve in any official capacity another year. This is to be regretted, as Mr. Prussing has been president of the exchange since its inception, and it has been largely to his energy and business ability that the organization of the exchange, and the power and influence it has since attained, are due. The Nominating Committee, composed of some of the strongest members of the exchange, have, however, selected for president, Mr. George Tapper, who is one of the best-known, and most skillful builders in the West, and would fill the office to the unanimous satisfaction of every member. They wisely retain the present secretary as, beside being universally popular, Mr. Schoenthaler's office is the business headquarters of the exchange, the details of which could not easily be transferred without detriment to the exchange, even if an equally popular member could be found to fill the office. Joseph Downey, who now occupies the office of treasurer, would prefer not to serve again, but has been prevailed upon to allow his name to be used on the ticket, and will, undoubtedly, be unanimously reëlected. A plan for selecting a board of directors that would be most satisfactory and popular, would be for each master association in the exchange to suggest one of their members to the Nominating Committee to serve on the directory. This would procure each interest a representation, and sustain the equality of each in the transaction of the affairs of the exchange. The Builders and Traders' Exchange of Chicago, though not as old as some others, has now the recognition of the entire building craft of the country, and the judicious management of their affairs will cause its power and influence to grow, not only as a benefit to its members, but to the city, the upbuilding of which they have in charge.

IN reviewing the paper presented at the Nashville meeting of the American Institute, by Mr. T. M. Clark, of Boston, at the more recent convention at New York, a decided diversity of opinion was observed in regard to the necessity or advisability of forming an architects' protective association. While the necessity for some such union of interests exists, the opinions presented against the scheme as outlined in the paper and subsequent committee's report, were well grounded. Especially true is the observation of Mr. Kendall that "architects should first learn to protect themselves against themselves before they sought protection against their clients." Still, since Mr. Clark knows whereof he speaks, and has gone into the matter with some earnestness, his plan should receive careful consideration and its possibilities and limitations be intelligently estimated.

THIS paper, however, so strongly points out to architects the unprotected condition of their practice and the general inability to recover their just dues through legal process that we would submit a plan which, if carried out, might result in general benefit. This is the employment of a lawyer by each state association to whom each member might apply for advice. The well-known ignorance of lawyers generally upon all questions regarding building laws and the lack of compiled rulings would suggest that if one lawyer in each state were paid to search for past decisions, become fully posted upon existing laws, etc., it would be of great benefit to the entire profession. A dollar or two tax upon each member would secure this, and the saving to architects would be great. In this way he could ascertain before entering suit his chances of success, and could be guided accordingly. Much unprofitable litigation would be saved, while the fact that the association had a prominent lawyer in its employ would lead clients to treat architects with greater justice. We would strongly advise that the subject be freely discussed at the annual meetings of state associations which occur this month.

WILLIAM PAUL GERHARD, the well-known sanitary engineer, who for some time past has occupied the editorial chair of *Building*, has resigned that position, and will devote his entire attention to his increasing practice. Mr. Wm. T. Comstock, the publisher, who will resume the editorial management of the paper, says:

> We have long seen that his intelligence, thoroughness and honesty as a professional adviser must in time require the devotion of his whole time to his chosen calling, and while we regret to lose his valuable services in the conduct of *Building*, yet we are glad to be able to congratulate him on his professional success.

Mr. Gerhard, we are glad to announce, will, for the present, retain his position as special contributor to THE INLAND ARCHITECT. As a sanitary expert Mr. Gerhard has few equals, and no superiors, and while his work in the editorial chair was marked and of great benefit to the readers of *Building*, we agree with Mr. Comstock in his indorsement and congratulation upon his professional success.

Style.*

BY JOHN W. ROOT, ARCHITECT.

IS it not high time that the familiar architectural word "style" was relegated to its proper meaning? As now used it has almost ceased to have significance even for architects themselves, while to the public at large the word has become a delusion. How often the architect of the day is compelled to strain his conscience in answering the familiar question as to the style of his designs, because he feels the necessity of calling by some traditional name designs often as unconventional as a chattering chimpanzee. For practical purposes, such phrases as Grecian, Doric, or Roman, Ionic, or any other names of the traditional styles have become impertinent, and are used only for lack of better terms.

The word "style," as generally used by the public, has, on the contrary, with all its varied applications a very comprehensive significance, and is rarely misused or misunderstood, and to say that a woman, a dress, or a yacht has "style" is to convey an impression which is understood with moderate accuracy. Thus used the word carries a deeper meaning than mere adherence to given fashions, even if the latest, as in the case of many women who devote an energetic existence to the latest styles, who are never accused by anyone of having "style." This quality has a wider sweep; it lies far beyond the creative power of a Worth or a L'Archeveque. It is inherent—a thing of the head and heart, not of the epidermis. It shines out from beneath a beggar's rags; it reveals itself in the touch of an inexperienced pianist, in the "handling" of a green artist, in the lines of a thatched cottage. We find that among the work of architects it is present in one building and absent in another. Often it characterizes an architect's smaller buildings and is absent in those more important, or vice-versa. In the progress of a design it frequently happens that a preliminary study will be full of "style" and the final design have not a bit of it.

Now, this common word "style" is manifestly not of the same signification as that used in architecture,—as when we say that buildings are in the "Grecian Corinthian style," "the style of François Premier," or "the French Gothic style of the thirteenth century." With this special use of the word, each one of us is presumably familiar and what I wish for a moment is to call attention to "style" in its larger, fuller and more widely understood use.

And first let us note that as far as art is concerned, few created things have ever lived beyond the age of their creator that lacked this precise quality. Occasionally some titanic and monstrous mind will throw upon the world intellectual spawn which will live for ages becuse of the tremendous power and vitality which have been injected into it. But these phenomena are too infrequent to be worth discussing, and form only rare exceptions to a universal law.

Of all great art works which have come down to us, spared by the tooth of time, we confess now what was confessed in each age before us—they have "style." This, in spite of the fact that the architectural style may be one we despise. Pierre de la Vallé probably had no warm admiration for that Gothic style which is built in the apse of Notre Dame de Paris: Christopher Wren certainly cared little for the similar style of old St. Paul's or Westminster Abbey, or the later Gothic designs of Oxford which he so mutilated. But I do not doubt that both architects would have admitted the buildings which they did not admire had the kind of "style" we are discussing. Why was this? For a reason precisely similar to that which saves a gentleman of the old school from the ridicule of a gentleman of the new. You may feel that the manners of the *grande école* are out of key with our jaunty flippancy; but there can be no doubt that they fitted a different, and perhaps better mode than ours, and in all essential things, all things of the heart, the two gentlemen are as one.

Thus, although Notre Dame de Paris and the Hotel de Ville are two buildings of different ages, as widely apart in manner as St. Louis and Henry IV, you will note how alike they are in certain respects. See the noble gravity with which in them large matters are treated; the sweet repose of manner in every-day affairs, the airily graceful and fantastic touch which enlivens lighter subjects. From the noble sweep of the center door arch to the great griffins that from its tower tops grin out over Paris, Notre Dame has this fine, gentlemanlike style. There are no solecisms. Everything is fitting; temperate when most exuberant, contained when most severe.

What is this fine style? How did these architects get it? How is it that all over the world—where the gleaming domes of Taj-Mahal sleep in the white sunshine; where gray Pylous of Egypt inclose their depths of luminous shadow; where the pink Peutalic columns of the Parthenon lie scattered on the Acropolis, bleaching like the bones of a dead demigod; where the dim, echoing aisles of Chartres filter from the sky its most heavenly rapture to pour it on the humbled worshiper—how is it that everywhere men have fixed in stone and wood and glass this quality, so subtle, that to us it often seems the most refined essence of art?

Any competent answer to this question will necessarily touch upon a field of ethics not confined to architecture alone, nor even to the arts alone, but pertaining to humanity itself. The arts, architecture among them, have been called polite. Perhaps in the earlier stages of this politeness architecture takes precedence of all others. Painting and sculpture began their career with no distinct debt to humanity; but architecture was, at its birth, shouldered with a large obligation, which it was in decency compelled to pay. Every house built to shelter man from the elements was a thing not to be avoided by its neighbors. It not only partially shut out from them grass and trees, and sun and sky, but, by virtue of its very bigness and fixity, it became, whether a thing of beauty or not, a thing of prominence. This fact has made Mr. Garbett call architecture "the politeness of building."

Accepting this definition as sound, let us note some of the qualities which we find in a gentleman, as we understand the term, and see if they are not equally applicable to good buildings. These are: Repose, Refinement, Self-containment, Sympathy, Discretion, Knowledge, Urbanity, Modesty.

REPOSE. Quietness of body and mind; not phlegmatism, but enforced quietness, as in the poise of a gladiator. The mind becomes finely receptive when held in this calmness of attitude.

REFINEMENT. In which all things tend toward the loss of asperity, not loss of power nor of value; gaining in that smoothness of surface, that crystallineness of composition which gives added currency and beauty to the thing refined.

SELF-CONTAINMENT. Which avoids a too-ready utterance of the momentary thought; which spares other people a swift infliction of all of our knowledge; which inwardly debates before answering grave questions.

SYMPATHY. Which "puts yourself in his place"; which readily accepts a point of view; which quickly adjusts itself to its environments; which gives gravity for gravity, lightness for lightness, tears for tears, laughter for laughter.

DISCRETION. Which seeks always the fitting thing to do, thus supplementing sympathy; which holds its tongue when speech is unnecessary; which knows nothing when forgetfulness is a virtue.

KNOWLEDGE. The care of speech; the loving selection of words; the scrupulous nicety of grammar, the fullness of idea and illustration that decorates each subject touched.

URBANITY. As the name suggests, a quality begotten in cities; suavity; the faculty of avoiding friction; the knack of easily getting about in crowds of men; the attitude of deference to their weaknesses; the power, without creating offense, to ward off their aggression.

MODESTY. Without which all other good qualities may become offensive. Not affected modesty; not Uriah-Heepness, but the genuine self-esteem which, in justly valuing self, puts as well a just value on others, and thus confesses that self is small in many comparisons.

Now, what are these qualities in men that they are not in buildings? Their sum total makes a perfect gentleman. The sum total of their analogues makes a perfect building. You may leave out several of them from a man's composition, and still leave him a very good fellow,—so from buildings a number of these elements may be omitted and still the design not be utterly damned.

Let us now proceed to apply these gentlemanlike qualities to a test of buildings.

First. As to repose. It seems at present heretic to say that it is the most essential of all qualities, but the fact remains that it is. The instinct of the world has grown to feel that all large things should be quiet or slow-moving, and that only little things like bees and butterflies may flutter. The world has also noted that all large things are soberly, even if richly colored, and that in form all of their lines tend to the expression of the quality of repose.

Since, therefore, buildings are the largest of human created things, a deviation in them from this universal law is the most elemental of mistakes, increasing in enormity as the building considered increases in size. Both in this and other respects many things may be pardoned to a little house, or one without public significance, which become unpardonable in a larger or more important building.

I am aware that you may summon as apparent witnesses against me many of the notable buildings of the world, but even in these I think a close study will show that the principle is sound, and is carried out. As a matter of fact, so general a law as this always has within it a lesser principle which determines the exact application of the law, and in this case the inner principle is simply this: "What sentiment is the building designed to convey? Is it the restless aspiration of the soul after God, as embodied in the medieval cathedral? Is it the expression of the power and stability of a great corporation, as expressed in its office building?" Evidently there must be very different treatments of the two classes of designs, but it seems equally evident that both designs must consider the outer and elemental law to as great extent as is consistent with the expression of purpose.

Practical applications of this law a little reflection will show us, and it is, therefore, worth while to mention but a few. Probably nothing about a design is more expressive in this respect than the management of roof or cornice lines. In a small house, or one which is greatly varied in plan so that each of its parts is small, a very broken and even restless outline may be good. But even in this case, there should be sufficient allowance of perfectly quiet and unrelieved background to fully offset its whimsical features. In large and important buildings, however, especially those built for commercial purposes, simple sky lines, I believe, experience will show to be best, as best conducive to the quality of repose,—and more than this, because a very broken sky line is apt to suggest multiplicity of subdivision or function, and should, therefore, be coincident with these subdivisions or functions. This in commercial buildings can rarely be the case.

The value of plain surfaces in every building is not to be overestimated. Strive for them, and when the fates place at your disposal a good, generous sweep of masonry, accept it frankly and thank God. If this goodly surface come at the corners of your building, so much the better; for there can be no better guaranty that the house will "stay where it was put" than the presence in it of masses of simple masonry at its angles.

* Paper read before the Chicago Architectural Sketch Club, January 3, 1887. Revised by the author for THE INLAND ARCHITECT.

As to repose in color, you will at once know all that can be said by me, and will sympathize with the utter condemnation of the use of sharply conflicting colors in a design for any structure of considerable size.

In general, our whims of all sorts, our fanciful vagaries, whether in color or form, may, perhaps, be safely put into small buildings, but if they go into large structures, they should be kept so well subordinated to the general mass, whose largeness and dignity should be expressive of not only sober thought, but of the gravity becoming all great things.

Refinement is a quality whose importance will be at once apparent. Of late years it has at times seemed obsolescent, but always in work which can never have permanent value.

More is signified by the word, as applied to architecture, than is usually fancied. It means not only the careful consideration of each detail in itself, but also the relation of each to its neighbors and to the whole. For what may be well enough in itself may be utterly vulgar in juxtaposition with other things.

By just what laws refinement in a building is reached, would be most difficult to state; but apart from that close study which is necessary for each good element in a design, the mysterious thing called "taste" is of vast importance here; and the acquisition and cultivation of this is a matter to be constantly followed. In this pursuit not only is it wise to familiarize oneself with confessedly great architectural examples, but with all great art work. As much may be learned of color from one great canvas of Paul Veronese as from all the books on the subject ever written, and the study of the contours of Greek vases will do more to cultivate a niceness of taste in outline than many profiles purely architectural.

More than all others, however, the human form must remain the supreme school for the study of form and proportion in its most refined and significant expression. Here, as all artists have insisted, the methods of nature have their fullest revelation. This is the divinest design for any structure; this is the most pregnant essay on the much vexed questions of Proportion and Scale; here is a perfect solution of the relation of exterior expression to interior arrangement and here is a demonstration of the fact that the utmost refinement may be combined to herculean strength. When fully expressed in architectural design, this refinement means all that it suggests in the human form itself. There is the same careful avoidance of useless features, the same perfect adjustment of each part to the function performed by it. Elephantine columns are not used to do the work of mice; necessary structural features are not emasculated by ornament too delicately wrought, purely decorative features are not so formed as to give a false suggestion of vital necessity.

Just as in the case of a man of the world, the refinement of a design will suggest itself through a thousand channels, sometimes through a direct appeal, sometimes through an indirect insinuation, sometimes through an effort to conceal some necessary weakness or misfortune so as to spare needless pain to the observer. In all cases the quality has the true ring when it springs from soundness of purpose—from the heartfelt desire to please; and it becomes false and hollow in men and in buildings whenever it is an affectation.

Let us glance at the next attribute of a man or building of "style," Self-Containment.

Whenever we meet a man who impresses us as burning with the wish to tell us all he knows, let him be as graceful in speech, as wide in knowledge, as polite in manner as may be, we feel that he lacks a most essential element of "style." So with a building. Nothing is more offensive than those verbose and overdone designs which are not only mere *tours de force*, but which suggest the anxiety of the architect to tell all that he knows in one design. Very successful buildings have the quality of temperance, of self-containment. Even in the most exuberant French or Flemish Gothic, the exuberance is a part of its age, and comes as a natural outgrowth from it. In good examples of these types there is no straining for effect, nor anything theatrical nor merely declamatory. There is always the feeling that, however much the architect may have chosen to say, he has neither exhausted himself nor his subject, but keeps in reserve a thousand strong images or quaint conceits for some future use.

In these days, when what we call "originality" is so much desired, self-containment is perhaps more difficult to attain than ever before. But we must learn it, distrusting the merit of any of our designs which have seemed labored to us, and in which effort has been made to express more than we have really well known, being assured that all over the building executed from such a design will be the painful traces of labor and sweat.

In the varied solutions possible to a problem, the true labor to be expended is in first determining which one is best, then evolving it, when it is found. The best solution will always be the simplest, and its full growth will follow with a directness and ease which suggest the budding of a flower rather than the forging of a columbiad.

Self-containment in the expression of a subject always means its thorough digestion. In conversation we may be pardoned if we occasionally think aloud, thus uttering many irrelevant or tentative things. Our buildings are much more serious things, for however much they may deserve oblivion, the fact that most of them remain standing after we are through with them prevents people from forgetting them. Every intemperate and hastily uttered thing about them remains to our discredit.

We may not all succeed in doing original work, but each of us can do well considered work, expressive of that self-containment which thinks first and speaks afterwards.

Sympathy, another quality necessary in the gentleman, is also necessary in a building, and this, of course, means an architect as well.

In each community there are certain tendencies of the people, certain peculiarities, full sympathy with which is essential to the successful designer. This is a point we are apt to neglect. Our work has too much of the transplanted look which comes from the absence of this active sentiment. Touched by the warmth and sunshine of an outgoing and vital sympathy, all styles of architecture become quickly acclimatized and characteristic. Yet it sometimes seems that one of our greatest efforts was to prevent this acclimatization by rigorous insistance upon mere traditions, too tenaciously holding to the dry canons of mere architectural style. This is altogether a mistake. A great type in architecture, like that of the Parthenon, became great not only because of its perfection as a solution of a given problem, but because in a hundred small respects it expresses the immediate influence of essentially local conditions.

This variation, because of environment, always comes about of itself in time, and this, maybe, in spite of architects. No importation of Greek architects could save Roman work from swift differentiation from Greek work. Our attitude should therefore be one of readiness to accept and help forward the inevitable. By doing this we can insure that it will be the finer national characteristics, rather than the grosser, whose influence will be manifested.

Passing from this wider view, we must also note that sympathy is equally essential in considering the purpose of each building, and the idiosyncrasies of each owner. Many a most brilliant feature has been the outgrowth of what at first seemed in a client an idiotic whim; and many most successful buildings are so because they reveal on the part of the designer a point of view in warm sympathy with their intention. If the building is a warehouse, a dry-goods store, an office building, or a hotel, the true points of view in designing them will be largely determined by these various commercial considerations.

The architect occupies a position in this respect different from all other artists. He can never afford, even when the artistic expression of his design alone is considered, to neglect a single condition not only in the larger matters of climate, national characteristics, general purpose, etc., but also in matters apparently very trifling.

I am confident that an architect designs a better grocery store, if into his own professional view of the problem, he will admit in all possible fullness the grocer's view. More than for all other artists does success for the architect depend on the activity and warmth of these sympathies.

But sympathy is a very dangerous thing without discretion. Sympathy leads us onward; discretion pulls us back. Without discretion architecture is like a machine without a governor.

Many houses which might be named, and which you all have seen, suggest a clock in the act of striking twenty-four, or are like a locomotive driving-wheel whirling around on a slippery track. How many buildings do you know of in Chicago, against whose discretion no charge could be sustained? Of course, I do not mean the large class of tramp and bummer houses which, if justice had her way, would always be in the lock-up, on charges of "drunk and disorderly:" I refer rather to houses of avowed morals, who profess not to stay out nights, and in whose daily and nightly life the latch-key has no place. In even these professedly good houses, how many skeletons dangle from the cornice, perch on the roof, hover about the doorways or crouch at the basement. What we need now more than anything else is "proper" houses, whose real discretion is what it professes to be. What would you think of a man who would wear his religion in the band of his hat, and yet get drunk, and not care enough about it to go home in a cab? This is exactly like the indiscretion of our houses. They are always doing indiscreet things. Columns, roofs, gables, balconies, are all over them, each loudly swearing it is what it pretends to be; and yet a blind man could see there is not a word of truth in it. In their anxiety to induce belief by volubility of protest, many of them look as if the source of their design had been a firework pin-wheel, while some assert by their cumbrous features, by their heavy brows and wrinkled skins that they are great giants of houses, when you see they are only wretched little pigmies.

Seriously, discretion is our crying need—the doing of the right thing in the right place and time. What discretion have we, when we assume in the prevalent craze, that because a type of design is good for a house 100 feet wide and high, it is equally good for a dwelling 25 feet wide and 30 feet high? in other words, that the limbs of an elephant are good enough for a greyhound; or that nothing is so beautiful as the torso of the Medici Venus on the legs of the Farnese Hercules. This sort of thing is no more true in architecture than in any other art or in nature itself. As the fond mother said of her hopeful son's "swear word,"—"It's worse than immoral—it's ungentlemanly."

Nor is it true discretion to assume that even the same sort or scale of detail is equally good for all buildings. We don't sing Schubert's "Lorlei" on the floor of the board of trade, nor shout the price of grain in our music rooms. And yet, we spend a wealth of delicate ornament on our down town houses, and build our dwellings like Stonehenge.

Now, it would seem that ordinary discretion would teach us that the relation between our dwellings and our trade palaces is the relation between an orchestra and a brass band. Whatever is to be spoken in a commercial building must be strongly and directly said. The very style of the ornament should be simple enough, and the scale large enough to be easily comprehended. If not, if the unseeing eyes of busy men are daily saluted by delicate details, not only are the details wasted, but they become so far vulgarized that it becomes impotent to produce pleasure even when men have in their houses leisure to contemplate it. In the exercise of this discretion, let us not only consider each thing our building will express, making sure that the thing be rightly placed and properly expressed, and that it be well adjusted to the mood of the spectator; not lowered down to his plane; but, although above the sordidness of his daily thought sufficiently in recognition of it to escape total neglect.

Our architecture will never live beyond our own lives until it loses much of its hap-hazard, hit or-miss indiscretion.

Knowledge is one thing which, if essential, is also obtainable; genius is beyond most of us; knowledge is accessible to all of us; so that in this age of light, ignoronce has become a crime. Occasionally we hear a certain kind of man deliver himself something after this fashion: "Knowledge is all very well if a man don't know too much." Then he'll cite instances of college men who are starving on ten dollars a week, and men who, like himself, had no education, "climbing to the top of the ladder." This sort of talk means nothing. Granting, for the moment, the point that starvation of the body is worse than starvation of the mind—that not to

know mental hunger is to be well fed—it remains true that the college man is not necessarily better educated than his more successful critic. There are many men to whom ideas come freely and graphically through things, and with slowness and dimness through books. Viewed from what point you will, every man is distinctly the gainer by acquiring knowledge, and no man more than the architect. Every building bears the impress of the knowledge or ignorance of its designer, not of necessity in any one of its details, or even in the composition and adjustment of them all, but certainly in the subtle thing which we call "style." The profounder the knowledge, the fuller and richer the result.

To know not only that architects of a certain age designed buildings after a certain fashion, and, adapted in certain styles, the various details of these buildings are valuable, but how much more valuable to know the causes which lay back of these results. The mere facts, though significant, are bald and unproductive without their antecedent causes. To have fully mastered these causes is to be able to produce results analogous to those first produced—not in the dry and formal manner of the mere copyist, but with the fire and force of the original. No period of college or school training can do more for the architect than beget in him the sacred thirst of knowledge, which it should be his life work to gratify. Apart from the pleasure to be derived from consciousness of this knowledge, is the certainty that every design he makes will bear the impress of it. It may be in the selection of means to ends, it may be indicated only in certain turns of profiles, in certain delicate adjustments of parts, where a different treatment would have been only less good—it may be in still remoter ways, but everywhere is shown the grasp, the copiousness of thought, the richness of apt illustration, born only of full knowledge. Just as in a critical essay by Matthew Arnold or James Russell Lowell, every sentence reveals the wealth of knowledge that lies back of it, so plainly does the architect reveal himself in his work.

In the absorbing cares of an active life, those forms of knowledge whose bearing seems immediate, or as we say, "practical," will be most naturally acquired, but it is a misfortune to any architect, and an appreciable loss to his work when he ceases to acquire that form of professional knowledge which is entirely literary, and which may be related to his profession only by some side light shed from another art, which architecture may borrow. The so-called "practical" architect, who knows nothing of his art but what has been grafted into him by the surgery of dry practice, is passing away. Large and acute minds there are, in whose work you see the result of ripe wisdom and nice taste acquired by long experience and observation alone. These are not the men, however, who will deride that wideness of knowledge which is here commended. They are rather men who will point us to their earlier work as monuments, not to their glory, but perhaps to their shame or misfortune, and warn us to push with all vehemence our acquisition of the knowledge thus early denied to them.

Do what we may, our profession is rich enough for us to range and feed in during all our probable lives, without ever getting into our stomachs the indigestible food of "mere theory."

Urbanity is the next phase of politeness to which your attention is called.

If sympathy is a fellow feeling, urbanity is the expression of readiness to extend sympathy even before it be asked. Time was when urbanity in a house was as unsuitable as a silk cap in a jousting tournament. The house was a castle, its owner its warrior defendant, and everybody outside it possible besiegers. But with the dawn of day after the long, dark, feudal night, the dwelling opened outward like a rose in the sun. Men like Jaque Cœur of Bruges, built houses in which they delighted to express to all who passed the new-found peace and friendliness. In such houses was the frankest avowal of good fortune, the most charming confession of a desire to please. So that these newly blossomed dwellings have the native charm of a lovely deputante who delights that others shall admire her duty.

Is not this the typical attitude of the nineteenth century dwelling? Certainly no menace threatens our houses which stone walls can ward off. The brigand of today gains access wherever he can enter. We certainly do not generally build our houses among people we don't speak to. Whence, therefore, the sudden growth among us of medieval castles, whose only lacking detail is a shriveled head thrust over the cornice on the end of a pike. Are we so badly put to it for ideas that we must not only borrow from the eleventh century, but add to the medievalism of it? Surely if this sort of thing was good when men went about in steel, sword in hand, it is not good when men wear silk hats and smoke cigarettes. We may be aristocrats by instinct, but need we write over our doors, "*Odi profanum vulgus et arceo?*" In other words, should not our houses follow our personal example, if we be gentlemen, and doff their hats to their neighbors?

In my business hours I may perhaps be pardoned if I am sometimes brusque, and hence my business house may follow me in the expression of this. But am I equally pardonable if my churlishness is not only carried into my house, but is thrust upon the street, greeting my neighbors who pass by, in the stone walls of my house? Not so; the courtesy I expect I should extend, and the house in which I live should plainly say to those who can less escape the daily sight of it than of me, "Here lives a gentleman."

This means nothing of extravagance of ornament nor lavish outlay of money nor vulgar solicitation of notice. It is beyond and above these, and rather scorns than courts them. It is simple urbanity. It is the natural grace of a graceful society, to which every man in it owes allegiance.

And this allegiance suggests the last subject which we may consider—Modesty.

What man so great as to escape its obligation—what building? Today we expend our labor upon some carefully considered design. It is carried out and becomes, what we and pe.haps the world calls our masterpiece. This last creation, emanating from our highest powers, furnishes to some stronger contemporary just the suggestion he may have lacked, and forthwith our masterpiece is eclipsed, and no one is the wiser as to how it came about. Our work once done becomes the world's property, and is judged not by the impression of the moment but by criticism matured through long time—criticism in which we often become witnesses against ourselves.

The self-assertion of a man or of a design has in this calmly pronounced criticism no chance for favor nor for fame. All its cheapness and all its arrogance are revealed, and at last it stands forth a bragging humbug. Look at the splendid architecture of the second empire in France. Men of great talent created it. Millions were spent upon it. Why did it fall short of enduring fame? It is not modest, it protests too much; it claims too much. It has the cheap bluster of a hired bravo, and the false beauty of the street cocotte. We must learn to suspect in our designs all that directly demands admiration as its right. Ours should rather be the ambition to erect buildings which are by observers said to "grow upon one." Not all of the buildings which, instantly upon their completion, have carried the world by storm, have held their place in the world's esteem. Most of them have, in spite of pride and self-assertion, fallen to their proper level. Fustian is always ephemeral, and brag is no more permanently effective in stone than in words.

All that has been said, all that might be said, only brings us back to well-known principles, and we find at the last that the summits of a great profession are achieved only by a persistent course and hard climbing; by self-denial and steady self-analysis; by wide and catholic views and finely-tempered taste. But we may be sure that our work will never rise higher than its source; that no great creation comes from a small man.

Such qualities as we have considered do not get into the building except through its architect; so we see that a gentleman among buildings means a gentleman among architects. Remember it was not Michael Angelo who did the talebearing or indulged in the loud recrimination when St. Peter's was building.

Our Illustrations.

Residence for S. S. Kurtz, at Canton, Ohio, by Guy Tilden, architect, Canton, Ohio; cost $6,500.

Trinity Episcopal Church, Kansas City, Mo., by Burling & Whitehouse, architects, Chicago. The superstructure will be built of rock-faced stone, the lantern of brick and terra-cotta, tile roof; cost about $75,000.

Cottage for Mr. F. Shearburn, at Normal Park, Ill., by Irving K. Pond, architect, Chicago. It contains reception hall, seven rooms, closets, pantry, bathroom, etc. Finished in pine; staircase in oak. Contract price, $2,410, exclusive of mantels and grates.

Rialto office building, Chicago, by Burnham & Root, architects. Illustrated from photograph by Hesler, by Ives' process. The building is built of St. Louis pressed brick and terra-cotta, with trimming of Missouri granite. It covers 146 by 175 feet, is nine stories in height, and cost about $650,000.

House for W. Zimmerman, South Park, Ill., by Flanders & Zimmerman, architects, Chicago, two stories high, attic and basement partly finished. Inside woodwork of pine, except hall of oak, all in natural finish. The exterior is shingled all over, stained a Sienna color, with creosote stain, basement of stone, outside walls have a double air space as shown, making a non-conductor against heat and cold, and taking away the look of "thinness" so common to the wooden house; cost, $3,500.

Flats for the Armour Mission, Chicago; Patton & Fisher, architects, Chicago. These flats are built by Mr. Philip D. Armour, to provide a permanent income for the maintenance of the Armour Mission. They are situated on the corner of Thirth-third and Dearborn streets, adjoining the mission building. The Thirty-third street block has a frontage of 122 feet, and the Dearborn street block, of 242 feet. There are forty-five flats in the two blocks, and the total cost will be about $110,000. The exterior is faced with mottled Marquette sandstone, pressed brick and terra cotta. The interior finish is of oak in the stairway halls, and of Georgia pine with cypress doors throughout all the flats. The buildings will be ready for occupants on the 1st of May.

AT a meeting of the real estate managers of the Cincinnati Chamber of Commerce, on the 7th instant, Mr. Joseph Kinsey was invited to make a statement for the Cincinnati builders who proposed to do the work upon the new building in marble instead of granite. In the statement which was received, Mr. Kinsey reviewed the question, the main point being as follows:

In the reading of the bids opened and read by Mr. Urner, chairman of the real estate managers, he omitted to read in full that of Mr. Norcross for the reason that it was confused and defective in the part which we are seeking to rectify, as it vitally involves the proposition to build the walls of the new chamber of beautiful white and mottled marble.

Whether this was intended or not by the bidder, we cannot say, but do assert that it so confused the committee that they did not take into consideration at all the fact that the marble men had made a rebate in the price of their stone that would have made the marble lower than the granite bid of Mr. Norcross, which was to finish the entire building for $524,000, of Massachusetts granite, while his bid to build of Georgia marble was $544,000.

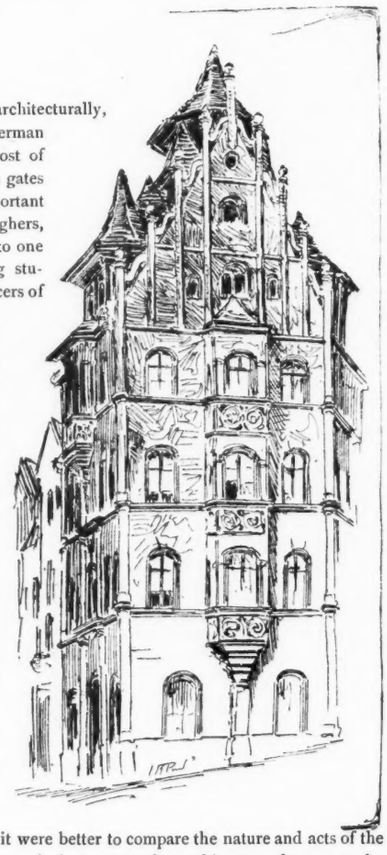
A bill by John Boyle was attached which, in substance, agreed to complete the building of Georgia marble, except carving and sidewalks, for $519,000. The prime considerations claimed in favor of constructing this new building of Georgia marble are: *First.* Its superiority to granite in beauty and durability. It is heavier and harder, and one of the most beautiful stones in the United States. *Second.* Its contiguity to Cincinnati. It is near by, comparatively speaking, and convenient to a great trunk line of transportation. It belongs to territory which is in close relationship to this city. *Third.* The quarries are practically upon that line of railroad—the Cincinnati Southern—in which our taxpayers are interested to the extent of $25,000,000, and in giving it business to do we are assisting ourselves to meet our honest debts. *Fourth.* As the Southern railroad was built for the purpose of enabling us to exchange our merchandise for the raw material of the South, we should omit nor easonable opportunity to respond to this purpose.

European Sketches.

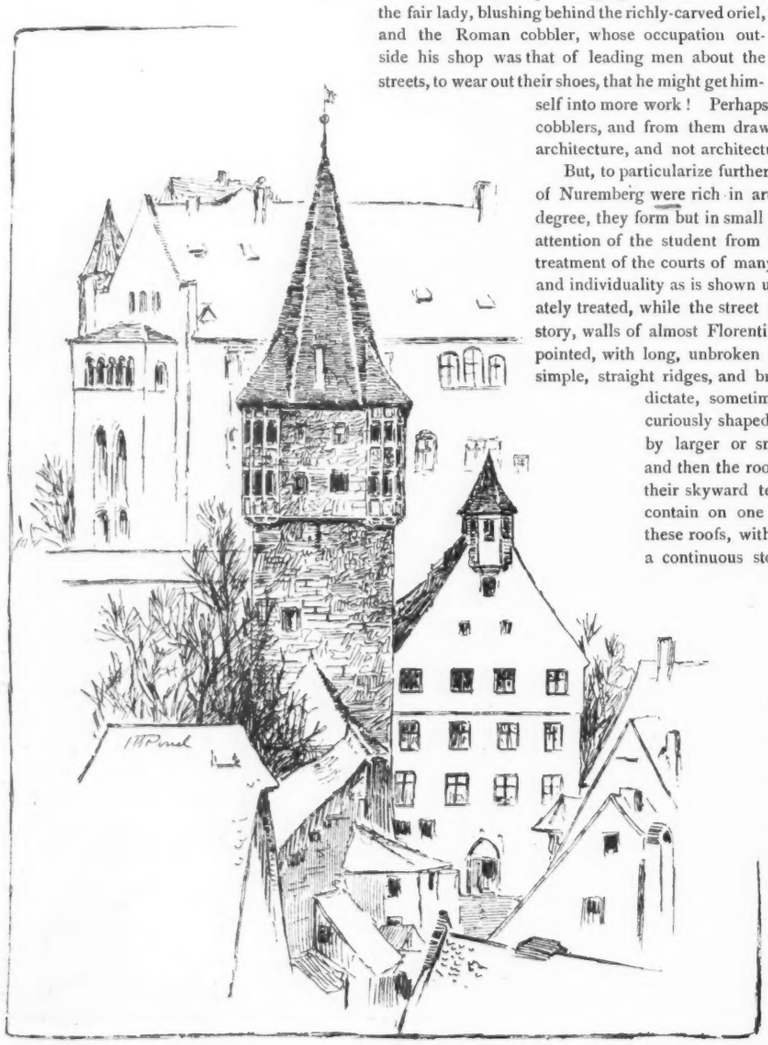
PART X.—NUREMBERG.

BY IRVING K. POND.

NUREMBERG enjoys the distinction of being, architecturally, the most picturesque and interesting city of the German Empire. It is with a feeling of relief and almost of home-coming, that the romantic traveler enters its gates after a season of sojourn in other large and important cities of the empire. The honest, homely faces and common clothes of the burghers, as well as the oriels and gables and dormers of the houses, are an intense relief to one coming from Munich, for example, where the ugly, scarred faces of the duelling students, and the hideously distorted forms of the tastelessly dressed officers and privates, especially officers of the Bavarian corps, and cold, resurrected forms of dead Greek art inflict themselves on the observer at every point. There are, to be sure, some gratifying evidences of original thought, and some picturesque work of the past, in Munich; but it is overpowered by the monstrous (in the sense of huge) imitations of the work of Greek and Roman. Nuremberg would tend to give a devotee of classicism troubled dreams—perchance a nightmare, were he compelled to rest, or rather, to remain within its gates from dusk till dawn,—a nightmare which could hardly be dissipated even by the simple straightforward lines and masses of the great castle seated so solidly above the choppy sea of red roofs. To the classic dreamer, these roofs, and dormers, and gables enclosed by the great, strong walls, must seem a pent up sea of warring elements; but to the romantic dreamer, how delightful the sensation of falling and of being swept up again, from dormer to balcony—from oriel to tower! Here and there, though rarely, are seen forms dear to classic eyes, but applied in a manner which would seem to out rococo old rococo himself; and everywhere is manifested that spirit of freedom and boldness which made Nuremberg, at the time of its independence, the leading commercial city of south-eastern Europe.



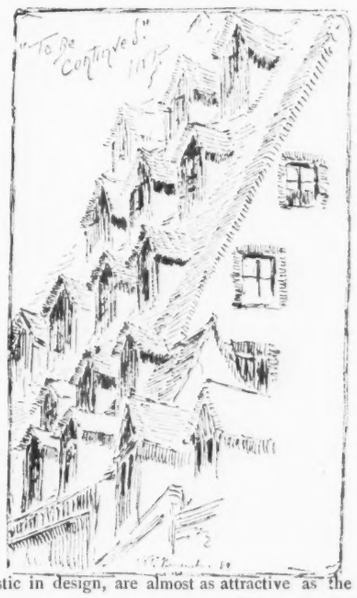
What is particularly noteworthy is, that all buildings, public and private, from the greatest to the least, bear evidence of this free spirit—this true artistic spirit. How could it well be otherwise? Where cobblers are poets, must not workshops be studios? Compare the classic ruins of Rome with the vital rem ainsof romantic Nuremberg, and you will readily appreciate the difference between the cobbler poet singing sonnets of love to the fair lady, blushing behind the richly-carved oriel, and the Roman cobbler, whose occupation outside his shop was that of leading men about the streets, to wear out their shoes, that he might get himself into more work! Perhaps it were better to compare the nature and acts of the cobblers, and from them draw conclusions as to the architecture, for men make architecture, and not architecture, men.



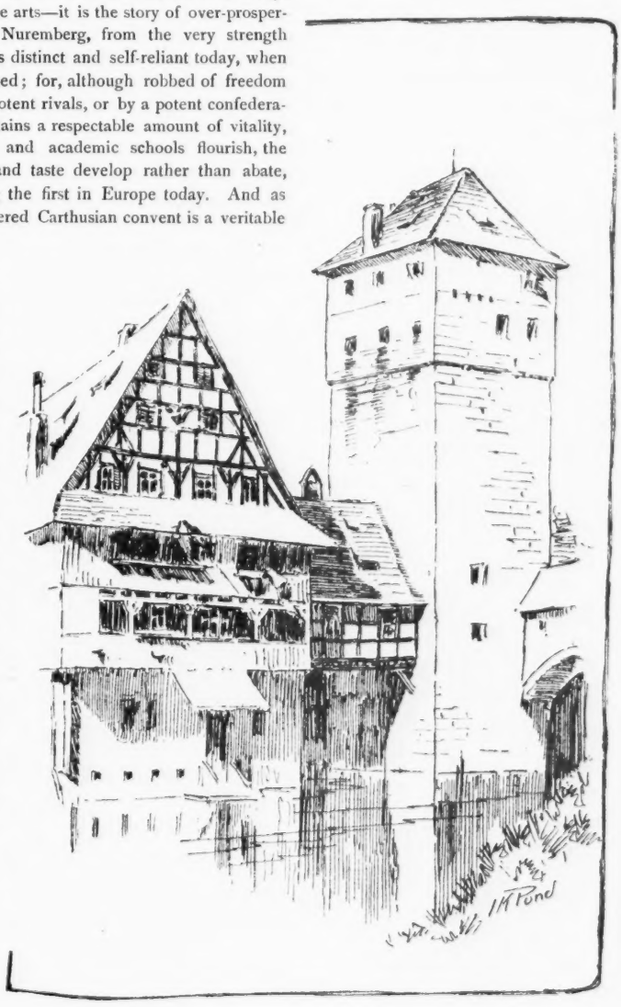
But, to particularize further as to Nuremberg architecture. While the churches of Nuremberg were rich in art treasures, and quaint and picturesque to a high degree, they form but in small part the attractions of the city, and do not draw the attention of the student from the private and domestic work. The architectural treatment of the courts of many of the private houses displays the same originality and individuality as is shown upon the exteriors. Often the court is very elaborately treated, while the street façade shows a restraint, and presents, in the lower story, walls of almost Florentine massiveness and severity. The roofs are either pointed, with long, unbroken hips, or are immense, strong gabled affairs, with simple, straight ridges, and broad, plain surfaces, broken as use or fancy may dictate, sometimes by small and simple, and sometimes by huge, curiously shaped dormers. The hips and gables are buttressed by larger or smaller towers, with roofs of fantastic form. Now and then the roofs, getting a good start, are hardly able to restrain their skyward tendency, and it takes a large-sized sketch-book to contain on one page both eave and ridge. A sketch of one of these roofs, with its tier upon tier of simple dormers, is very like a continuous story in a monthly magazine: you begin to go on—and on—and it seems as if the climax never would be reached.

The walls were generally treated in stone. Brick, however, appears, and very effectively, in gables and in the upper portions of the towers. Heavy open timber framing occurs in upper stories and gables, brick and stucco being the materials for filling in. The general use of the oriel window in houses of every style, is one of the very noticeable features. These windows are treated generally as the principal feature of the façade, and run often from the first story to the roof,—as a rule, terminating under the eaves,—though sometimes they continue above, and are capped by dormers. Where oriels are not the principal features, broad, elaborately carved overhanging balconies furnish the relief; while often, as is the case in the *Nassaur Haus*, the wide-spreading eaves roof a long, shady loggia, which finishes at either end in a projecting bay,

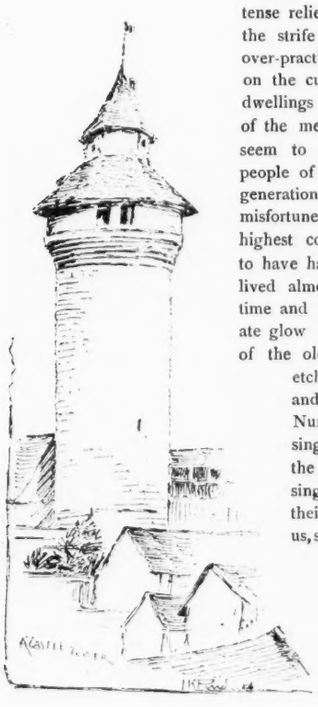
capped by a spire-like roof. It may be said, with a fairly close approximation to the truth, that the variety of dormers is limited only by the number of buildings. Certain it is that no two prominent gable ends have received the same treatment. But, however varied may be the form and size of these dormers and gables, it is in the rarest instances that they interfere with the strong lines of the main roof. They may seem to do so, but a point of sight is always available when all lines will melt into harmony.



The castle, with its massive towers, and its great, sober roof broken only occasionally with little peek-holes, exercises a quieting influence on the more restless roofs below. The castle commands a magnificent view over the town and surrounding country, and is, itself, a prominent mark in the landscape. Long ago, the jolly Pegnitz sighted the castle from afar, and wandered down the valley towards the quaint town at its base. The inquisitive stream found its way under the walls, and rambled carelessly and crookedly along behind some buildings and before others, and imparted a decidedly Dutch flavor to the scene, at many points of its course. Curious broad arched stone bridges were thrown over the stream, and these were flanked with heavy towers, which were intended probably to keep them in place should the stream become restless or boisterous with new drink. These bridges, so varied and characteristic in design, are almost as attractive as the churches, and like bridges in all cities where bridges are a feature, are an excellent point for observing the forms and features and peculiarities of the human beings who move in surging masses to and fro across them. The towers which guard the river bridges have brothers, larger and more massive, stationed on the city walls, to guard against agencies more envious and destructive than the river, and they have been less successful. For Nuremberg's story has been pretty much the story of all the highly prosperous mediæval towns; at first there was servitude, then freedom, the reward of noble duty done—then financial prosperity, then external envy and internal pride and jealousy—then strife within and without—then defeat and decay. It is parallel with the history of the arts—it is the story of over-prosperous individual human life. But Nuremberg, from the very strength of character of its builders, remains distinct and self-reliant today, when many another rival town has vanished; for, although robbed of freedom and of commercial power by more potent rivals, or by a potent confederation of rivals, the quaint city maintains a respectable amount of vitality, both in art and culture and matters of industry. Polytechnic and academic schools flourish, the manufacture of smaller articles requiring a high degree of skill and taste develop rather than abate, while the workers in wrought iron and metals and bronze are among the first in Europe today. And as to art,—every public building, from the castle to the beautifully cloistered Carthusian convent is a veritable storehouse of art.



So we gladly accord in the sentiment which has granted distinction to Nuremberg, for it is with intense relief that we turn away from the strife and vain struggle of this over-practical today, and rest our eyes on the curious old walls, towers and dwellings which echo with the songs of the merry poets and artists who seem to have lived only to make people of their own, and of future generations, merry and careless of misfortune; who in the days of highest commercial prosperity, seem to have had high ideals, and to have lived almost ideal lives. Of course, time and traditions have cast a roseate glow over the lives and doings of the old cobbler-poets, carpenter-etchers and painter-architects, and we now know the ancient Nurembergers as we see them singing and swaggering through the operas—the poetic Meistersingers; but, beyond all that, their work remains and tells us, strongly and clearly, as strongly and clearly as stone can tell, that they had ideals,—and not the least of these was, to spread happiness and content around them.



Architectural Ironwork.

BY C. W. TROWBRIDGE.

STRUCTURAL CAST-IRON WORK—CONTINUED.

Continued from Vol. VIII, No. 5.

TO return to our column molds: After smoothing the facing, the core is set. This is sometimes made the whole length in one piece, sometimes in two lengths, jointed in the center. This core is supported from the bottom on little round iron rods, say ¼ or ⅜ inch diameter with plates, say 1½ to 2 inches square on top. These run down through the sand to the bottom board and hold the core up to its proper place. They are called chaplets. The chaplets for the top are usually made very much heavier than those for the bottom, say for 1 inch metal ½ or ⅝ inch diameter, for 2 or 3 inch metal ¾ to 1 inch diameter, according to the size of the core. Cores weigh about 110 to 120 pounds per cubic foot, and when submerged in iron every cubic foot of core lifts with the force of 330 to 340 pounds. This the chaplets have to hold down, notwithstanding they pass through a fluid metal and consequently get almost white hot. This is one reason why columns of very thick metal are unsatisfactory to cast, and often come out with cores shifted, or more metal on one side than the other, the chaplets having buckled before the iron got hard. Chaplets also give trouble if the metal is extremely thin and don't hold the chaplet firm enough to chip off good. Whenever you see a crooked column you can generally calculate that the top chaplets didn't do their duty, and that the core has risen up, making the metal thinner on one side than on the other. This is one of the most serious defects to which columns are subjected, and causes greater loss of strength than any other. Where these top chaplets pass up through the iron, there is very apt to be little blow holes surrounding the chaplets. Any moisture or rust on the chaplets assist in making gas to fill out these cavities. Often the sand is hollowed out, forming bosses, say, two inches in diameter, and one inch high around the chaplet. These are chipped off after the casting is cold, and generally contain all the blow holes, leaving the column sound. I have known superintendents want to reject columns on account of these chaplets, saying there was a hole and it had been plugged up with wrought-iron, and that they were not green enough to let a contractor run a plugged column off on them. Not much, you had better take that column away.

As these chaplets have so much work to do they are securely braced at the top. This is usually done by an iron bar and thumbscrew, or wedges between the chaplets and the crossbar. I have known molders to screw chaplets down so hard as to break the core. That is a sign by which you can tell what molders to discharge when dull times come. The pouring gates are usually made near the end, three or four inches from the pattern, and runners cut from the bottom of the pouring gate to the mold. Sometimes if the cope is thick, and the iron has to fall a considerable distance, a piece of core is bedded in for the iron to fall on at the bottom of the pouring gate to prevent tearing up of the sand and carrying some of it into the mold. When the cope is put back on, clamps are placed at short intervals along each side to hold it down. These clamps, running from the top of the chaplet bars to the under side of the bottom board, are either wedged or drawn up with screws. Pouring a mold is something you have all seen in foundries, and know what an interesting sight it is at night, and what handsome fireworks you see if a little iron gets poured on to a cold floor. There is a serious defect in one class of casting caused by wrong pouring, which I will mention right here. I refer to the square panel-faced mullions and columns with projecting bases and caps that are used in so many of our buildings. Generally these are cast face up. As the iron fills the mold, it flows steadily up the sides until it reaches the top of the core, when it flows over into the panel and the face of the center part of the column between caps and bases. As the rate of the flow of metal into the molds is regular, it takes some time to fill the panels and space of the center part; meanwhile the iron at the sides of the cap and base has been standing still at a level, the same as that of the center part of the column. As the core and mold is cold, a skin will form across at the surface of these places. When the center part is full the iron rises suddenly and fills bases and caps. This skin is apt to stay where it has formed, and the iron flow over on top of it, making a seam, sometimes a crack on that line running along each side of the base and cap. The remedy for this is to keep the iron in motion at these points. This can usually be accomplished at one end, by arranging the pouring gates so that iron flowing in them runs past these places, but at the other end, unless two ladles are used, and some iron put in there also, at the right time, a seam is very apt to show.

As soon as the iron goes into a mold the gas begins to run out. The sea-coal facing and moisture in the sand all become gas, passing out of all the joints in the flask, and out at the top through numerous vent holes made by perforating the cope with a wire before the pattern is taken out. The gas is lighted at once, and burns strongly for some time. Cooling off usually takes till morning of the next day, and my opinion is that it is much better to design your casting so that it can stay in the sand to cool.

Some castings have to be uncovered so one part will cool quicker than the rest to prevent their becoming crooked. This necessitates skill and judgment on the part of the molder to get it uncovered just right. Much more uniform results can be obtained by having your castings even enough thickness to balance right when cooled in the sand of the flask.

I will quote here from an article I wrote for the Union Foundry Handbook:

So many disturbing elements intervene between the conception of a design in cast-iron and the completion of the work in the building, that we all have to allow what we call a factor of safety (aptly characterized by the late Alexander L. Holly, C. E., as a factor of ignorance) to cover these contingencies, varying from three or one-third the breaking strain in very simple cases where the quality of the castings can be depended upon, to five, or even ten, where the design is more intricate or the liability to shrinkage strains, hidden defects in the castings, rough bearing surfaces or uncertain variations of the load are possible. Much can be done by designers of cast-iron work to reduce this factor of safety, and, consequently, the weight and cost of castings, by giving serious consideration to the many processes through which their designs pass on the road to the building. Foundrymen exercise great ingenuity in producing any design in iron that may be presented to them; still it is possible to design things that are totally impracticable in cast-iron, in which case the designer would probably be asked to modify his drawing; but when it is possible to carry out a design without change, it is the almost universal practice to do so without comment and without recollection of the fact that the resulting castings may have very serious shrinkage strains or other defects which would reduce the strength far below what the designer expected. For instance, a column, say 16 feet long, 8 inches in diameter, ¾ inch metal, is sometimes designed with a heavy projecting base molding near the bottom, say 12 or 14 inches in diameter, giving 3 inches or more thickness to the metal at that point, also having an extension of the shaft to pass down through a shell plinth or pedestal, while at the top there is a shell cap and then a shelf, say 12 by 24 inches, drawn 3 inches thick, to insure strength without the use of brackets or ribs. When we consider the strength of mold necessary to stand the wash and pressure of the iron poured in, we appreciate that the sand must be firm.

Now, realize that the pattern for this 16 foot column is made 16 feet 2 inches, to allow for shrinkage; also remember that when this shrinkage occurs something has got to give. The shaft of your column being only ¾ of an inch thick, will solidify and commence to shrink, while the metal in your heavy base molding and the shelf at the top is still fluid, and a little metal will run out into the body of the column as it draws away in cooling, leaving a little vacancy or depression in the upper part of the shelf or base. Presently these heavy parts will become about the consistency of cheese, but the shaft of the column keeps on cooling and getting shorter. Now the situation becomes serious. The soft metal in the base and shaft is not solid enough to allow the column to draw them bodily through the sand mold, so they stay where they are and the column shrinks away, stretching out more of the soft metal after it, making a weak place or leaving a nice little crack, and, in an extreme case, pulling away so much that the head will drop off when the column is hoisted out of the mold. Then the foundryman looks wisely at the column and says, "Now I will fix you," and puts a fillet around below the shelf, or a bracket which will cool quickly and help pull, chipping out the bracket when the column is cold. In case all these fail, he just lays in some cold pieces of pig-iron before closing the mold, and they cool the heavy places off rapidly and everything is lovely. This last makes the soundest job in the lot, as they all melt down together; still there is liable to be dirt on the surface and shrinkage strains that would not be there if the designer had made his metal in the shelf only one and one-quarter or one and one-half times as thick as the shaft, put in some strengthening ribs or brackets, and had also made his whole base shell, except a small bead or fillet, thereby justifying a smaller factor of safety and allowing all parts to cool at the same time. Mullion columns are often designed with a heavy square face cored out, which stands in front of the wood frames, while a thin web runs back between the sash weight boxes. This is an exceedingly hard shape to cast without shrinkage strains. The cored part in front only radiates heat from one side (the core being quickly heated through), while the webbed back runs away off toward the remote parts of the mold, giving off heat on both sides, and the extreme back edge radiates in all directions but one, thereby cooling much faster than the front part, so that when the back has attained its length for normal temperature, the front is still red-hot and much longer. When the front cools there results a strain, which gives this column all it can do to hang together until it gets into the building, without doing its full share of work after getting there. Moral: A good liberal factor of safety or a nice large rib of metal, round or square, on the back of the web to keep it from cooling too fast. The privilege of modifying the thickness of parts of castings to avoid shrinkage strains is one that a designer can safely give a foundryman, for it is always cheaper to make castings right than wrong to commence with. Unequal cooling and consequent crookedness of shell pilaster faces, frieze plates and light ornamental work is usually corrected by the foundryman without asking the designer's permission, as it is utterly impossible to get light work straight without providing for equal and uniform cooling. But in the manufacture of thicker pieces and parts intended to sustain loads of any kind, the foundryman never makes changes or asks permission to change if he can possibly execute the work as per drawings received. Generally speaking, a more intimate association between designers and executors of cast-iron would result in a great saving of metal and a reduction of the factors of safety. Imperfect and unsound castings, owing to carelessness in the manufacturing, are much more rare than is generally supposed. Cold shuts, from pouring the metal too cold, honeycomb, dirt and scabs from soft or unclean molds, are quite rare, and never dangerous in the work of reputable foundries. Many more bad castings are made through an honest endeavor to carry out a design which is not positively the best thing possible for the place, than from carelessness in the execution of the work.

Among the most noticeable indications of shrinkage strains in finished castings is crookedness. One side will be shorter, thereby giving the whole piece a crook, or in the case of wide plates, they sometimes appear with the center perfectly straight and both edges "loose," or apparently too long for the center. The same may be said of the thin back ribs sometimes put on mullion columns. This comes from the apparently long parts cooling first, so that when the heavier parts cool afterward the light parts are left too long for their places, while the loss of strength incident to these causes is usually provided for by the enormous factors of safety used. Still, if designers would examine their castings carefully, they would soon be able to design forms not liable to these defects, and reduce their factors of safety accordingly.

(To be continued.)

A LARGE shipment of corrugated iron, siding and packed standing seam roofing has just been consigned to Jerusalem, Palestine, Asia, by the Cincinnati Corrugating Company, of Cincinnati.

Building Stones.*

BY WILLIAM B. LORD.

THE busy people of this world, with but few exceptions, are too much occupied in the various channels through which an existence or competence is gained to give particular attention to industries foreign to those which demand their thought and time.

Occasionally a fortune-favored individual desires a home, or a syndicate concludes to erect a structure; then architecture and its kindred branches are required to aid in consummating their wishes. The walls of the building are among the first and most important considerations, and a source of reliable information upon the material presented for use should be within ready access of those who are interested.

The duty of furnishing this information falls upon the geologist, and it is a wonder to me, how they gain much information when they have been compelled to pursue their investigations under such (financial) discouragements, often receiving a salary that a first-class bookkeeper would decline, and a meager limit for publishing their reports. Attachment to their profession has been their only incentive to search for the hidden treasures of nature. For our consideration I have undertaken the task of collecting this scattered information, and endeavored to place it in such a simple form as to readily enable an interested person to intelligently study the interesting and valuable subject of building stones.

The science of geology is founded on such simple observations as running of water, rippling of waves, blowing of winds, shining of the sun, cooling of heated matter, growth and death of animal life and vegetation. These every-day operations have given the earth its external aspect and left their history in the rocks. We interrogate the facts which surround us and find them able to narrate a history.

Science authorizes us to say that our earth was first created as an igneous vapor. Cooling and condensation transformed it into a molten mass, and a solid film was formed over this molten sea. All of the water which now forms the sea and the rivers, and saturates the soil and atmosphere, then rested upon the earth as an arid, elastic, invisible vapor, extending an unknown distance into space. The same agency, cold and condensation, gradually caused this vapor to thicken and fall as rain.

The tumultuous waters, chemical affinity, and other agencies, destroyed portions of the rocks already formed, scattering the débris over the ocean bed in horizontal layers. The rocks thus deposited in the bottom of the ocean incorporated the remains of earlier life, such as shells, plants, fossils, etc., and were subsequently raised to the level of dry land. These rocks are called stratified to distinguish them from the earliest igneous rocks, which are not stratified. The lowest sedimentary rocks are locally so changed by contact with escaping gases and molten material as to essentially alter their usual character. Limestones are converted into marbles, sandstones into quartzytes, clays and shales into slate, while many of the earliest are changed by chemical transformation among their elements into schists; and even gneiss, mica and hornblende slate can scarcely be distinguished from the igneous rocks.

To a student of nature is revealed the existence of epochs, or periods of time during which various changes were effected by heat, cold, pressure, chemical affinity, and existence of life. Among the results of these agencies are the various formations which are adapted to building purposes. The cooling and shrinking of the earth, and the forces produced by the accumulation of gases, tilt the overlying strata in various directions, and so fracture their bedding as to disclose their formation to the geologist.

The rusting of iron, the decaying of wood, cementation of gravel and sand by percolating water, the demolition of rocky out-crops and their conversion into soil by the solvent action of chemical affinity, and moisture of the air, are things of common observation. Investigation of the causes of these changes developed the science of chemistry.

Geological surveys are prosecuted for the purpose of bringing to light the products of nature, such as coals, clays, marls, building stones, etc., which are in use in the arts and manufactures and their accessibility and value for economic purposes. With a field so broad, and information imperfect, and sometimes unreliable, as many facts concerning building stones remain to be solved, my paper can hardly be free from errors and deficiencies, but every effort has been made to avoid them as far as opportunity has permitted. It might be well to mention a few of the many curious features which arise while gathering matter for a paper of this description. By referring to architectural journals, it will be noticed that all building interests, save that of stone, are fully represented by elaborate advertisements. One answer was elicited by advertising for desired information from quarries. Personal letters to quarry owners, clearly stating my purpose resulted in seven answers. Evidently there must be some reason for withholding the information sought. My conclusion regarding the general reluctance shown by quarry owners to give information, is that they think they would have better success in their sales by private solicitation, than by publicly bringing their stone to the notice of those interested in building, depending upon their success as salesmen, and the ignorance of the general public, or, I might say, their lack of general information. Many articles on building stone have been published, but none that I know of, in such a form as would be of ready assistance in the selection of stone, rendering this a difficult task to those not directly interested. The lack of a general knowledge of building stone is clearly apparent, even to the casual observer of our buildings and sidewalks. It would be a saving to the capitalist when erecting enormous structures, and to those who are building an expensive residence, to take the necessary time to thoroughly investigate the proposed material, as all the various sources of lithology in chemical, microscopical and physical methods of investigation are wonderfully developed and readily applied; or for a small outlay, consult an expert, and secure a good, durable stone for the proposed structure.

* Paper read before the Chicago Architectural Sketch Club, December 6, 1886, illustrated by specimens from the rocks, showing natural formations referred to. Revised by the author for THE INLAND ARCHITECT.

There is an apparent carelessness shown by the owners in this money-getting city, and an over-confidence in those who are intrusted with the expenditure of vast sums of money in building; and the result is, far sooner than expected, thousands of dollars are required in repairs—patching and painting decayed stone. You may coat the decaying walls with one of the many solutions which are used for that purpose, and prevent water and acids from entering the stone, while the coating remains upon it. If the stone is perfectly dry when the coating is applied, and the wall is protected by a damp course, disintegration ceases. But there is always a certain amount of water in a disintegrating stone, which is continually dissolving its cement, and more is continually being absorbed by the unprotected portions of the wall, so, for this reason, disintegration is continually at work, and coating the stone is only temporary.

Builders decidedly prefer a softer stone, because it is easily worked and yields more profit; and, generally, you will find that class of stones used, as a natural result of the indifference or mistaken shrewdness of some party concerned, endeavoring to arrive at grand results with little money. In many sections of the East, over one hundred years of exposure of different building stones in various climatic situations is a practical test of their durability; which, if taken advantage of by those contemplating building, instead of wasting capital as a matter of indifference,—Chicago will be a city of enduring structures as well as of phenomenal growth. Some of the fast-decaying buildings of New York are an example to profit by. I noticed in Philadelphia, that a local blue-veined marble is much used, and shows excellent weathering after many years of exposure. When builders realize the unfortunate mistake of using stone that is not time-tried or known to be durable, and display the same business tact in the selection of stone that is used in accumulating money, then demands will be made for such stone as should go into buildings.

There is a certain class of cheap construction necessarily demanded in a large city. There is also an abundant supply of suitable materials which should be used for that purpose. I noticed a statement, some time ago, that brick was the only fireproof building material. Many varieties of silicious sandstone, for instance, the buff freestone, from Amherst, Ohio, resists a white heat 2370 degrees Fahrenheit, where used for linings and hearths of iron furnaces. A hornblende syenite granite, and some of the primary rocks, are practically indestructible, having had their baptism of fire centuries ago. In fireproof construction there is a choice for the architect. He is not confined to the glaring red of brick and terra-cotta—for there are beautiful rocks among the primary formations and among sandstones—presenting colors which would please the artistic eye, suitable for the purpose, susceptible of fine carved effects, and readily worked.

I hope to see the monotony of red building material relieved by solid, handsome buildings of these rocks.

Regarding brick keeping clean, it may be stated that a brick front is rarely erected perfectly clear of white efflorescence, and the brick all of the same shade of color and degree of hardness. While the hard brick resists climatic effects, the softer ones are gradually dissolved, and it is only a question of time before the front requires a coat of paint, or repairs. The requisite qualities of a good building stone can soon be learned by a close observer.

Costly experiments in structures in various parts of the country have most of all aided in the development of the economic part of this knowledge. The application of chemistry separates constituent parts, and the wonderful microscope (the inseparable companion of the geologist) is most fruitful in determining component parts, and leads most directly to the desired results. In the selection of building stone particular attention must be given to the climate of the locality where used. Stones which readily absorb water are not likely to be durable in a variable climate you can test this point by wetting a stone and rubbing it), as water softens the stone, allowing the elements to wash it away from the walls of a building, or it freezes in winter, and splits the stone. Especially do not use such a stone at or near the ground line, without thoroughly protecting it by a damp course.

Lamination in stone is an indication of weakness, as such stone will occasionally slip under pressure, and shale off, when on edge.

Stone often varies from different parts of the quarry and also from different parts of the same bed. So very great care should be exercised in its selection. It would be a saving to employ a competent inspector when quarrying stone for a large building.

From tests of crushing strength by G. A. Gilmore, I will give the largest and smallest in both 1 inch and 2 inch cubes:

SANDSTONE	1 inch	4,250	New Brunswick.
	2 "	17,000	
	1 "	17,725	Medina, New York.
	2 "	71,000	
MARBLE	1 "	8,670	Dorset, Vermont.
	2 "	34,680	
	1 "	20,025	Wisconsin.
	2 "	80,100	
LIMESTONE	1 "	5,650	Canton, Missouri.
	2 "	22,600	
	1 "	25,000	Lake Champlain, Vermont.
	2 "	100,000	
GRANITE	1 "	10,375	Keene, New Hampshire.
	2 "	41,000	
	1 "	24,040	Passaic County, New Jersey.
	2 "	96,160	

Stone quarried in summer will lose its quarry water by evaporation, and stand better in a wall. When carbonate of lime is the cement, a quantity of it is held in solution by the quarry water. As the stone loses the quarry water by evaporation, or dries out, the carbonate of lime, which is held in solution, is deposited in the stone as additional cementing material and, therefore, makes it more compact. Freestone containing oxides of iron as a cement, sometimes hardens by exposure to weather; this is supposed to be caused by the oxides of iron passing to a higher

degree of oxidation by absorbing oxygen from the atmosphere. When silica is the cement, and held in solution by quarry water and once crystallized, it then becomes insoluble, and the stone will not be softened by exposure. This is the reason of the durability of a silicious sandstone.

The disintegrating ingredients of a stone should be the first consideration. The principal agents of destruction to a granite are, epidote kaolin, calcite, pyrite and iron oxides. They are all readily detected by the microscope, and, if existing in quantities, by the eye. Epidote gives it a green color; its crystals are always green.

Kaolin (pure clay) is decomposed feldspar and readily distinguished by its white, soft, minute, scaly appearance. When free from soluble alkali it burns perfectly white. Calcite, the mineral which is the base of all limes, can be discovered by its effervescing activity with dilute acid. The microscope shows it in crystals, if not in the form of shells. Pyrite (sulphide of iron) by small specks of yellow metallic luster. The various oxides of iron are distinguished by their color, and show wherever they exist.

Iron pyrites (iron sulphides) and iron oxides are the principal agents of decomposition in limestones and sandstones, unless properly incorporated in the stone. Iron pyrites, unless in sharp, well-defined crystals, are a serious detriment to a soft stone, as it decomposes readily, stains the stone and causes it to blister or shale, as noticed in our euclid-stone sidewalks. In a hard, non-absorbent stone the pyrites will be washed away and leave a hole. In the Wyoming valley, Penna, bluestone the iron pyrites are sharp, thoroughly disseminated crystals, and their presence is advantageous, and assists in making it a durable stone.

All of the oxides of iron are held in solution in the stone in the quarry by water of hydration, and are carried around and through the stone by percolation, and thus they wash out, and the stone loses its color and cement and falls to pieces, unless it retains enough to hold the particles of the stone together. Generally speaking, if rock in a quarry lays above drainage, its color is permanent and uniform, as the stone has been traversed by atmospheric waters, and all possible oxidation has taken place. Brown sandstone should be quarried early in the season to get the water out of it and set the color. Sometimes the color can readily be washed out, as I did with a piece of soft, brown sandstone from Houghton on the north shore of Michigan. Such a color is generally dull and with no life. Among the distinguishing features of color and durability in sandstones, which are due to iron oxides, may be mentioned:

Red and brownish-red is due to iron in the anhydrous, sesquioxide state, for instance the Lake Superior.

Bright yellow color is due to the hydrous sesquioxide of iron; an example is the Amherst (Ohio) sandstone.

Yellowish color to hydrated ferric oxide, as noticed in the Marquette variegated sandstone.

Bluish or greenish color to the ferrous oxide, as noticed in the Michigan sandstone.

The brighter, or more lively color the stone possesses, shows a less hydrated or watered state of the iron cement, and thereby a hard stone, unless the iron is incorporated in the grains of sand which compose the stone and thereby give the stone the color, then the strength of the stone depends upon the amount of the cement.

A dull, lifeless, and bluish or greenish color is liable to turn by the action of the oxygen of the atmosphere to a dirty red, either evenly or in spots, because the more hydrated ferric oxide absorbs nitrogen and carbonic acid, which assists to disintegrate the stone.

Decided blue or gray color is mostly caused by the carbonate or protoxide of iron, although blue is sometimes a finely disseminated iron pyrites and occasionally an iron phosphate, as in the New York blue which contains pyrites and a small portion of the phosphate.

The weather acts both physically by rain, wind and frost, and chemically by the solvent action of the atmospheric impregnated water, and the oxidizing action of the oxygen of the atmosphere which bleaches and softens carboniferous and bituminous sandstones; for instance, some of the Carbondale and Ohio sandstones, and limestones, because the organic matter disappears in the form of a carbon dioxide.

The acid atmosphere of manufacturing cities is injurious to stones composed largely of carbonate lime. In wet, smoky localities, sulphuric nitric, carbonic, hydrochloric and other acids are taken up from the air, by the rain, and spread over the surface of buildings; therefore, soft porous limestones and sandstones which contain calcareous matter, and more hydrated iron oxide as a cement, are susceptible to their attack, and should not be used. In winter time much acid is condensed with a small quantity of air, and its effect is most destructive.

The life of a building stone is shortened by alternate freezing and thawing, changes from dryness to moisture, and differences of temperature at the same moment, from the outside and inside of a building. The direct rays of the sun will reach 120° on the outside of a building, while the inside may be but 70°, and in winter the outside may be 20° below zero, and the inside 70° above—either situation is a tremendous strain to be borne by a stone, exclusive of what is expected of it in a building.

Sometimes the life of our building stones, in which carbonate of lime is the cementing material, is prolonged by the formation of a thin pellicle of black sulphate of lime which is wholly insoluble in acid or water. This can be noticed in many of our business buildings by their dingy appearance. It may be fairly said that the durability of a stone depends on its impermeability to water, its density, evenness of texture, and amount and kind of binding material it contains. Each given point must be carefully considered before condemning a stone, as what it lacks in one constituent may be made up by a superiority in others. Many stones for building purposes have been introduced into Chicago by enterprising persons, and now examples may be seen from almost every section of this country, and some foreign ones. We have had scarcely the time to test the durability of all of them,—some of them are disintegrating, and such as are proving unreliable can be avoided in the future, and a better class of buildings be erected.

(To be continued.)

Association Notes.

WESTERN ASSOCIATION OF ARCHITECTS.

At a recent meeting of the Board of Directors, a committee was appointed to serve, and report at the next convention, upon the motion of Mr. C. C. Helmers, of St. Louis, passed at the last convention:

Resolved, That the president appoint a committee of three members from each state association to collect information in regard to legal decisions relating to building interests, and that they report at the next annual convention.

The committee is as follows:

Missouri.—Chas. C. Helmers, chairman, room 39, 418½ Olive street, St. Louis; Adriance Van Brunt, Kansas City; T. B. Annan, room 64, 904 Olive street, St. Louis.
Kentucky.—Henry Walters, Courier-Journal building, Louisville; H. P. McDonald, N. E. corner Fifth and Market streets, Louisville; H. L. Howe, Louisville.
Tennessee.—Geo. W. Thompson, Nashville, Joseph F. Baumann, Knoxville; Chas. C. Burk, 280 Main street, Memphis.
Minnesota.—L. S. Buffington, room 20, Boston block, Minneapolis; Isaac Hodgson, room 56, Loan and Trust building, Minneapolis; D. W. Millard, room 505, Drake block, St. Paul.
Texas.—James J. Kane, Fort Worth; S. A. J. Preston, Austin; N. J. Clayton, S. E. corner Twenty-third and Strand streets, Galveston.
Nebraska.—Sidney Smith, room 20, Withnell block, Omaha; Z. L. Fisher, Paxton block, Omaha; Geo. W. Field, Omaha.
Michigan.—Sidney J. Osgood, room 9, Porter's block, Grand Rapids; Lemuel D. Grosvenor, Jackson; G. W. Lloyd, 34 N. Fort street, Detroit.
Illinois.—Louis H. Sullivan, room 46, Borden block, Chicago; C. L. Stiles, 115 Dearborn street, Chicago; Wm. Holabird, 57 Montauk block, Chicago.
Indiana.—J. W. Reed, Evansville; J. F. Wing, Ft. Wayne; B. Vonnegut, Indianapolis.
Ohio.—J. W. Yost, 45 N. High street, Columbus; E. O. Fallis, 48 Chamber of Commerce, Toledo; S. E. Des Jardins, 62 Pike's building, Cincinnati.
Kansas.—J. G. Haskell, Gavitt's block, Topeka; E. T. Carr, Leavenworth; A. W. Haywood, Wichita.
Wisconsin.—E. T. Mix, Evening Wisconsin building, Milwaukee; D. M. Harteau, Green Bay; H. C. Class, Milwaukee.
Iowa.—W. F. Hackney, Des Moines; C. H. Lee, 317 Fifth street, Des Moines; E. H. Taylor, 19 First avenue, Cedar Rapids.
Georgia.—F. C. Bruce, 1½ Marietta street, Atlanta; A. McMurphey, Augusta; T. H. Morgan, Atlanta,
New York.—Louise Bethune, 531 Main street, Buffalo; J. G. Cutler, 35 Rochester Savings Bank, Rochester; W. W. Carlin, 55 Chapin block, Buffalo.
Dakota.—Albert E. Cobby, Yankton.
California.—Eugene S. Calkins, Los Angeles.
Wyoming.—J. S. Mathews, Cheyenne.
Louisiana.—Thos. Sully, 73 Corondolet street, New Orleans.

A motion by John W. Root, passed at the last convention, was acted upon.

WHEREAS, In the case of each building constructed from the designs, and under the supervision of a member of this association, the owner of the building should be supplied with full data of all official points involved in its construction.

Resolved, That the Executive Committee have printed and mailed to each member of the association a form, the object of which shall be to supply to members, under the seal of the association, a schedule of points in relation to which the Executive Committee deem it advisable that clients should be informed.

The board has adopted and printed the following form:

WESTERN ASSOCIATION OF ARCHITECTS.

STATEMENT OF STRENGTH OF BUILDING.

.....188..

M.....

DEAR SIR,—You will please take notice that the capacity to resist strain of the .....
erected for you at....., from .....designs, is as follows:

SAFE FLOOR LOAD, EQUALLY DISTRIBUTED.

Basement story	.....	pounds per square foot.
First	"	" " " "
Second	"	" " " "
Third	"	" " " "
Fourth	"	" " " "
Fifth	"	" " " "
Sixth	"	" " " "
Seventh	"	" " " "
Eighth	"	" " " "
Ninth	"	" " " "
Tenth	"	" " " "

The strength of walls, piers, columns and foundations has been calculated for carrying the floor load as before stated with safety.

With reference to the running of machinery in the said building,.....state:
.....
.....
.....

With reference to the possibilities of additions to the height of the building,.....
state:.....
.....
.....
.....
.....

.....*Architect.*

In the case of each building constructed from the designs, and under the supervision of a member of this association, the owner of the building should be supplied with full data of all essential points involved in its construction, as above stated.

[SEAL.] JAMES F. ALEXANDER, Secretary W. A. A., La Fayette, Ind. JOHN W. ROOT, President W. A. A., Chicago, Ill.

This form will be distributed to members, and can be had upon application to the secretary.

CHICAGO BUILDERS' AND TRADERS' EXCHANGE.

At a meeting called at the request of thirteen members of the Exchange to consider the advisability of sending one or more delegates to the convention of master builders, to be held in Boston, January 10, 11 and 12, by unanimous vote of the meeting Mr. Geo. C. Prussing was elected to represent the Exchange.

At a meeting on January 4 the following members were appointed as a nominating committee to select candidates for the coming annual election of the Exchange, which occurs on the 17th inst.: E. A. Thomas, John McKenna, Wm. Herson, J. B. Sullivan, Chas. B. Kimball.

A motion was also carried that the Builders and Traders' Exchange make arrangements for its annual subscription banquet and that a committee for that purpose be appointed. The banquet will take place early in February.

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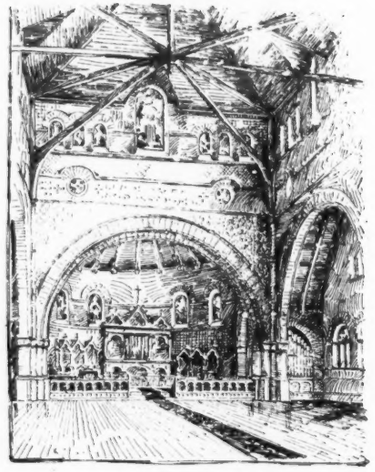
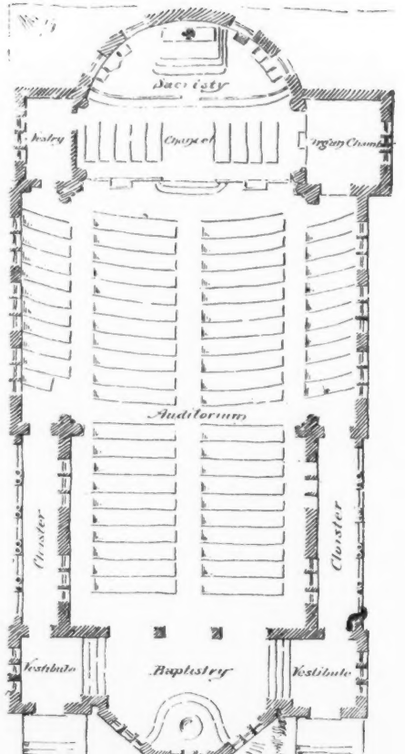
THE RIALTO OFFICE BUILDING, CHICAGO.

BURNHAM & ROOT, Architects.

Specimen of Ives' Process by the CROSSCUP & WEST ENGRAVING CO., 907 Filbert street, Philadelphia, Pennsylvania.



Interior of Lantern & Chancel



Trinity Church

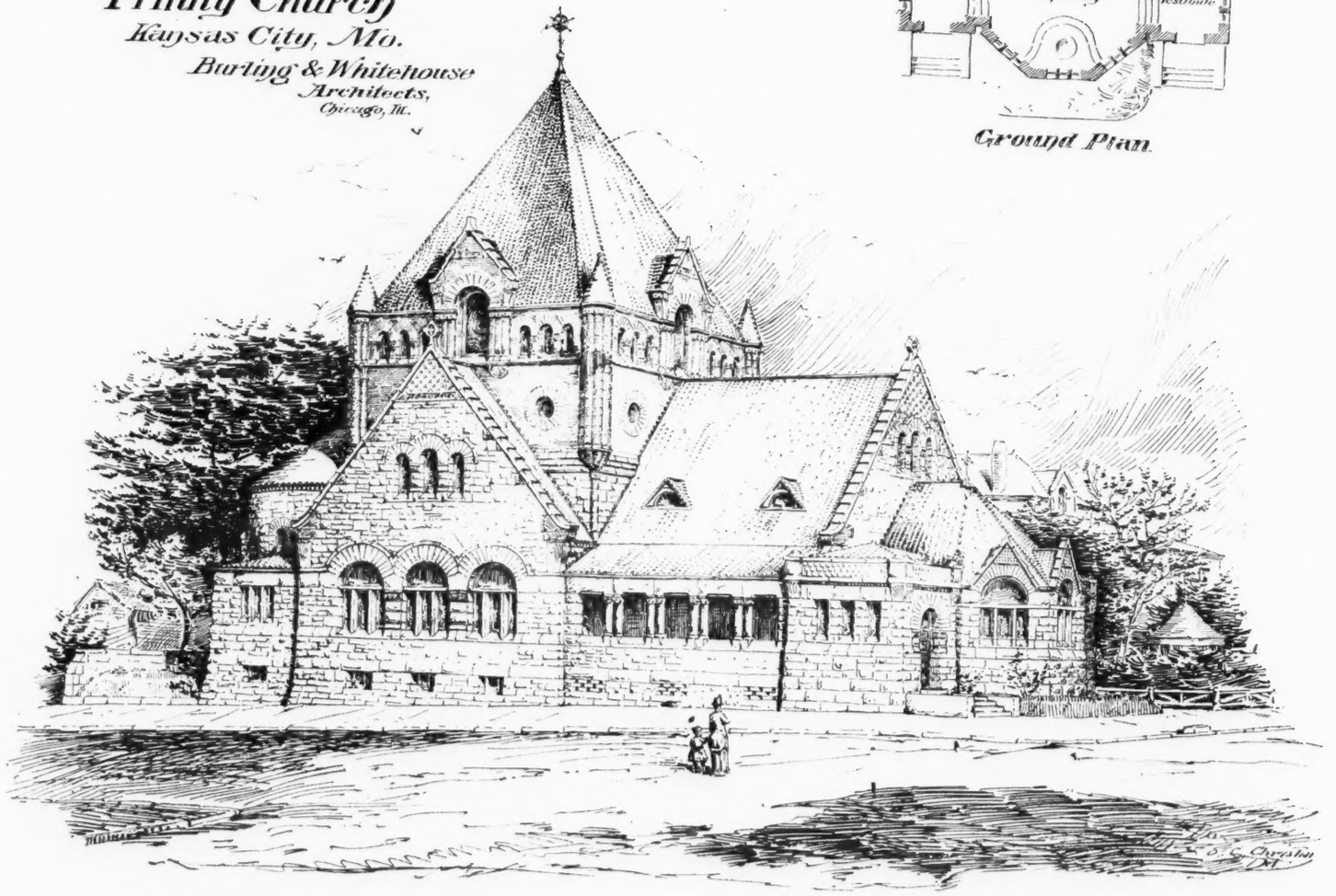
Kansas City, Mo.

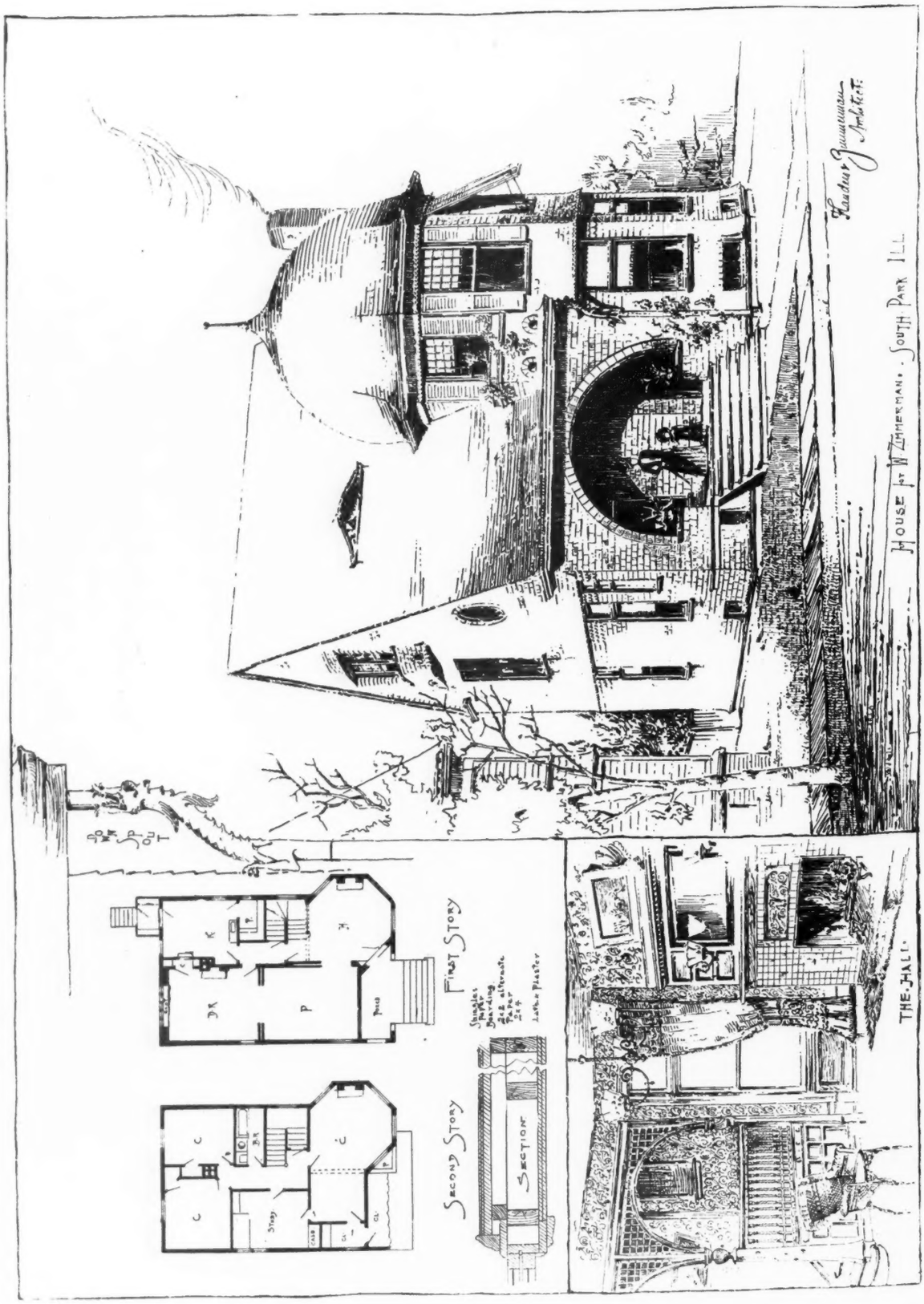
Trinity Church

Kansas City, Mo.

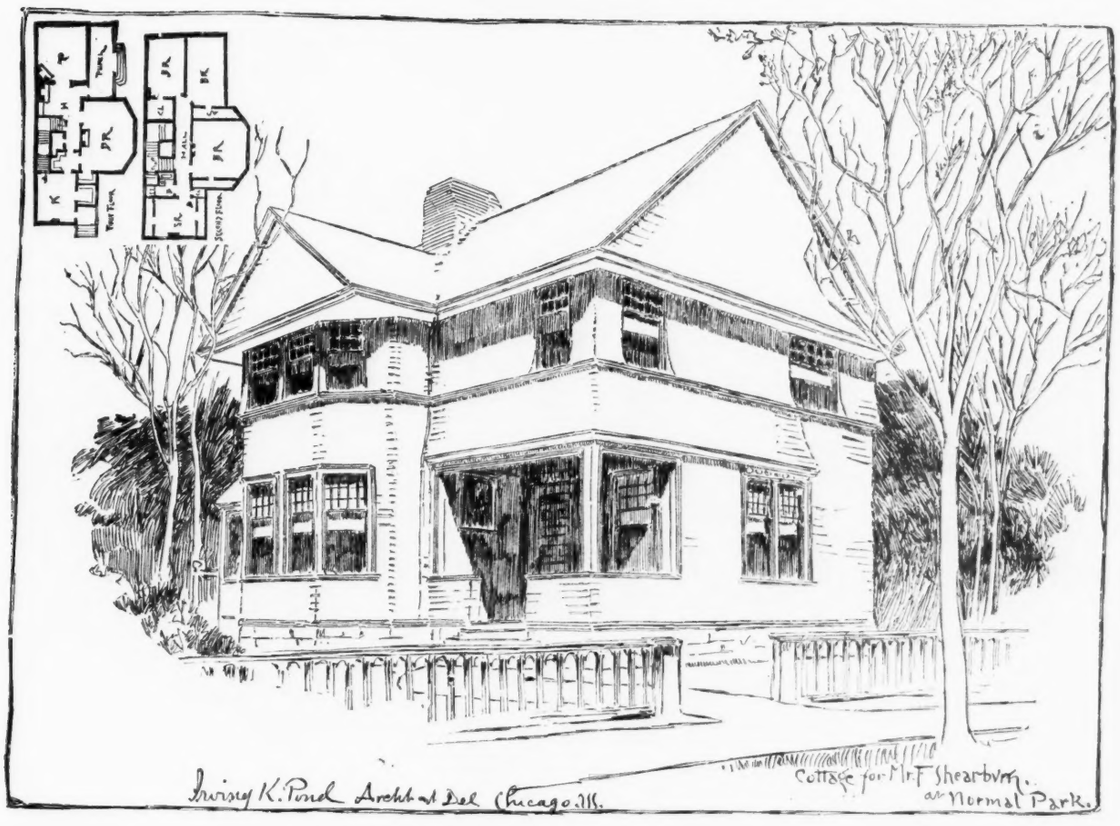
Burling & Whitehouse
Architects,
Chicago, Ill.

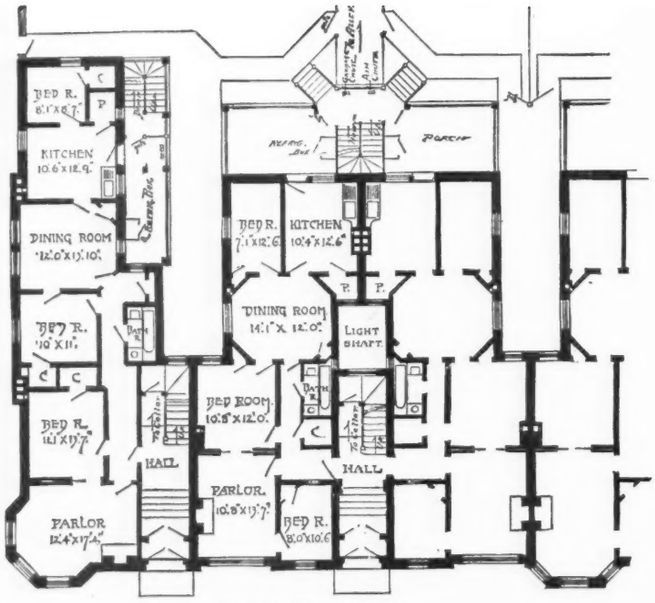
Ground Plan



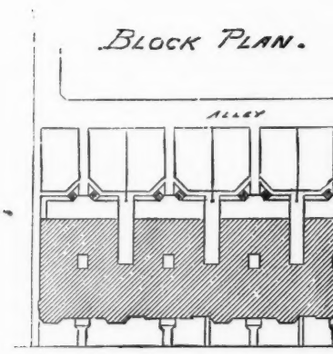

Flanders & Zimmerman Architects
HOUSE for W. ZIMMERMAN. SOUTH PARK ILL.
THE HALL.
FIRST STORY
SECOND STORY
SECTION

RESIDENCE OF J.S. KURTZ. ESQ.
CANTON. O.
Guy Tilden. Archt.





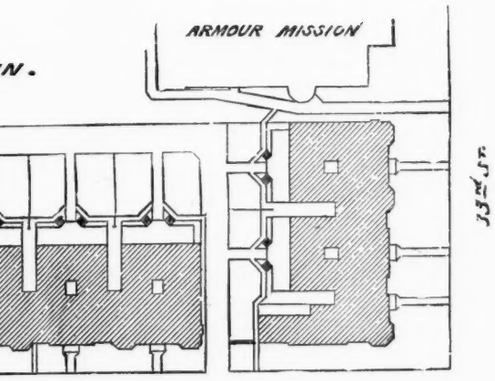
GROUND PLAN



BLOCK PLAN.

DEARBORN

Patton & Fisher architects



FLATS FOR THE ARMOUR MISSION.

PATTON and FISHER,
ARCHITECTS,
CHICAGO.

ARCHITECTURAL ASSOCIATION OF MINNESOTA.

The annual meeting of this association was held in the club rooms of the West hotel, Minneapolis, January 4. The various reports showed the association to be doing good work. The principal business was the election of officers, which were as follows: E. P. Bassford, president, St. Paul; G. M. Goodwin, vice-president, Minneapolis; F. G. Corser, secretary, Minneapolis; E. E. Joralemon, treasurer, Minneapolis; D. W. Millard and John Teltz, of St. Paul, and W. H. Hayes and Irving W. Kelley, of Minneapolis, board of management. After the transaction of general routine business, the meeting adjourned.

In the evening, the annual banquet was attended by about fifty members of the association and several prominent members of the building fraternity, who were guests of the association. Letters of regret were received from John W. Root and R. C. McLean of Chicago. Mr. McLean was invited to respond to a toast, the "architectural press," and his letter, containing some remarks on the subject, was handed to the association's official journal, the *Northwestern Architect*, for publication. D. W. Millard, of St. Paul, occupied the seat of honor and made a most felicitous toast master. The Profession of Architecture, as Viewed from the Outside, was responded to by Rev. H. W. Simonds. The Architectural Association of Minnesota, by J. K. Wilson; the Fireproof Man, by G. Sidney Houston; Twin Cities, by F. G. Corser; Engineering of the City of Minneapolis, by Andrew Rinker. These toasts were followed by an excellent address by the new president, E. P. Bassford. Most prominent among those in attendance at the banquet were: Messrs. Burns, Ford, Sullivan, Zchrcke, Millard, Scribner, Wilson, Boardman, Chamberlain, Cox, Granger, Hollman, Haley, Craig, Hayes, Hanson, Martin, Hamilton, Houston, Johnson, Harris, Cauvet, Rinker, Corser, Taylor, Kelley, Baldwin, Goodwin, Boyce, Simmons, Buffington, Breen, Joralemon, Chapman, Orff, Nesbett, Brown, Bassford, Farnham, Hand, Dodson, Topping, Hodgson, Struck and Grant.

The banquet was altogether a most enjoyable affair, and the sentiments expressed will give a strong impetus and direction to the work of the association.

ILLINOIS STATE ASSOCIATION.

At the regular meeting of the association, January 8, the final discussion of the sanitary bill was entered upon. Besides a very full attendance of members, committees from the Master Plumbers' Association, Alderman Ryan, chairman, A. W. Murray, T. C. Boyd and J. J. Wade, and a committee from the Master Sewer Builders' Association, W. H. Launder, chairman, Charles Berkenshaw, F. W. Forch and W. M. Dee, were present, and also W. H. Genung, city health inspector. After three hours' discussion it was found to be impossible to finish at one sitting, and the meeting adjourned to meet on Saturday, January 15, at two o'clock sharp, when the discussion will be resumed, beginning with section fifteen. It was suggested that the work would be much facilitated if members would study the bill, and where objection was found to any section, to prepare a substitute in writing, so that it could be instantly discussed when reached. At the meeting of Saturday, there was much useless discussion, because members objected to the reading and had nothing to offer as a substitute, and also by having an imperfect knowledge of the contents of the bill. As the bill, in its different phases, has been already printed four times in THE INLAND ARCHITECT, it should be fully understood by each member.

ASSOCIATION OF OHIO ARCHITECTS.

The following circular letter to members of the state association has been issued:

ASSOCIATION OF OHIO ARCHITECTS.

CINCINNATI, December 15, 1886.

DEAR SIR,—The third semi-annual meeting of the Association of Ohio Architects will be held, with headquarters at the parlors of the Burnet House, Cincinnati, Ohio, the third Thursday in January, 1887, at 10 o'clock A.M.

It is earnestly desired that all members will be present, as the election of officers and other important business will come before the meeting.

It is also desired that all who intend to come will notify the secretary as soon as possible of such intention, and bring with them such architects of their acquaintance as they deem qualified to become members.

To make the meeting more interesting, members are requested to bring or send, express charges prepaid, examples of their work; also, to prepare papers of interest to the profession, to be read at the meeting, and notify the secretary of the subject.

Copies of constitution, schedule of charges, and code of competitions, may be had on application to the secretary.

WALTER R. FORBUSH,
Secretary pro tem.

MISSOURI STATE ASSOCIATION.

The following is the programme outlined for the convention, to be held on Tuesday, the 11th inst.:

The Executive Committee of the Missouri State Association of Architects have selected the following subjects for general discussion at the next annual convention, to be held in this city, on the 11th January, inst., and have assigned the opening of the debates to the following named gentlemen:

Uniform System of Measurements. Mr. Geo. Carman.
Architectural Pupilage. Mr. C. E. Illsley.
Professional Etiquette. Mr. J. B. Legg.
Certificates of Membership. Mr. F. B. Hamilton.
Foundations in General. Mr. A. Van Brunt.
Brick Masonry—Use of mortar and treatment under varying temperatures. Mr. F. M. Howe.
Plastering—Proportions of materials, methods of mixing and application—decoration of. Mr. John Beattie.
Stone as a building material—Varieties and uses. Mr. James McNamara.
Hardwoods for Interior Construction — Methods of treatment — avoidance of shrinkage. Mr. E. F. Fassett.
Fireproof and Slow Burning Construction. Mr. T. F. Tinsley.
Contracts in General—Lump and sub-bidding. Mr. G. M. D. Knox.
Plans and Specifications—Preparation of and supply to contractors—ownership of. Mr. Charles K. Ramsey.

Fifteen minutes will be allowed each of the above assignees and five minute debates to each member participating. The Committee earnestly impresses upon the members the desirability of a thoughtful consideration of the subjects here presented, trusting that the large amount of personal and practical information thus elicited will give our association an additional impetus and reason for existence.

The members of the various committees and their chairmen, appointed at the last convention, are expected to be ready with the fullest possible reports.

By order of the Executive Committee, T. B. ANNAN, *Secretary*.

WISCONSIN STATE ASSOCIATION OF ARCHITECTS.

The architects of the State of Wisconsin met in Milwaukee, January 3, persuant to a call, issued by architect George B. Ferry, of that city, member of the Committee on State Organization of the Western Association. A state association was formed, and constitution and by-laws adopted. The following officers were elected:

President, E. Townsend Mix, Milwaukee; first vice-president, James Douglas, Milwaukee; second vice-president, William Waters, Oshkosh; secretary and treasurer, Howard Russell, Miwaukee; board of directors, the officers of the association and D. M. Harteau, Green Bay.

The association will meet next on January 17, to complete organization and outline work for the year.

This is the second attempt made by Wisconsin architects to organize, and they are to be congratulated upon their success.

MASTER BUILDERS OF THE UNITED STATES.

Chicago was represented at the conference of master builders of the United States, at Boston by the following: George C. Prussing, builders' and traders' exchange; Thomas E. Courtney, master masons; William Grace, association of master carpenters and manufacturers of wood-building materials; J. G. McCarthy, master painters' association.

CHICAGO REAL ESTATE BOARD.

The annual meeting and election of officers of the board will occur on Wednesday, the 12th inst. Mr. William D. Kerfoot is mentioned as the probable successful candidate for the presidency. Mr. Kerfoot is one of the best known and respected among the Chicago real estate men.

The annual banquet of the board will be given Thursday evening, January 27, at the Palmer House. Preparations are on foot for the occasion of enjoyment such as has characterized all of the banquets given by the board.

CHICAGO MASTER MASONS ASSOCIATION.

At the annual meeting of the master masons, Joseph Downey was elected president. Thomas E. Courtney, treasurer, and Herman Mueller, secretary. Twelve applications for membership were received. The association is in a prosperous condition. Mr. Downey, as president of this, the most important of the master associations of the city, will continue the able work performed by his predecessors, Mr. George C. Prussing and George Fox. As a master mason he has no superior in the West, and his reputation of honesty and gentlemanly conduct, together with his business ability, can be relied on to advance the interests and usefulness of this association.

CHICAGO ARCHITECTURAL SKETCH CLUB.

At the regular meeting of the Sketch Club, on the 3d instant, the evening was principally devoted to the reading of a paper upon style, by Architect John W. Root (printed elsewhere in this issue). The paper was listened to with the deepest attention by the largest attendance of members ever assembled at a meeting of this club, there being over sixty present. The paper was probably the best ever written upon the subject, and the deep silence of the listeners was only broken at the close of the reading, when it was most enthusiastically applauded. Remarks were made by Messrs. Beaumont, Lively and Carpenter, and a vote of thanks was responded to by Mr. Root, in a manner that will always be remembered by the members of the club, and add to the esteem in which the speaker is already held by them. Mr. Root spoke of the relations between the architects and draughtsmen. They were the assistants and often the advisers of the architect, and no architect should decline to consult with his draughtsmen when their opinions would be of advantage. The Sketch Club held the leading position among the draughtsmen's clubs of the country, and the work that they were doing was not only important, but would advance them to the front architectural rank when practicing for themselves.

The following syllabus for the year has been prepared, and was read by the president: December 6, 1886, Chemical formation of building stones, by W. B. Lord. January 3, 1887, Style, by John W. Root. January 31, One hundred bits of Europe illustrated by lantern, by John K. Allen. February 28, Heating and ventilation demonstrated, by W. M. Green. March 28, A day at Maulbroun, by Frederick Keppler. April 25, Byzantine ornament, by R. E. Schmidt. May 23, Ornamental ironwork, by C. W. Trowbridge. June 20, Decoration, by F. L. Linden. August 18, Comparison between ancient and modern architecture, by O. C. Christain. September 12, Originality in American architecture, by Geo. N. Maher. October 10, Ornamental brick architecture, by F. L. Blake. November 7, Annual business meeting. November 14, Annual banquet and exhibit. Besides these papers, each alternate evening is devoted to club work, and a series of eleven competitions are arranged for, to occur monthly during the year.

CHICAGO MASTER PLUMBERS' ASSOCIATION.

The annual meeting of the association occurred on January 5, President T. C. Boyd, in the chair. The report of the sanitary committee was read by C. J. Brooks, the chairman. The report stated that the committee had held four meetings and much had been accomplished. The committee will continue to act and will, upon Mr. Brooks' recommendation, be reduced to five members.

The treasurer's report showed an expenditure of $346.05 and a balance of $447.37. The legislative committee reported progress in the matter of conference with the State Association of Architects in regard to the sanitary bill. Satisfactory reports were received from the executive and warehouse committees.

William Howard was elected to membership, and an application for membership from William Goelitz was read. The time of meeting was changed to the second and fourth Tuesdays of each month.

In reply to a communication from the Association of Master Carpenters and Manufacturers of Wood Building Material, asking that a committee of three be appointed to confer upon a proposed code of marking

principals for 1887, Messrs. William Wilson, P. Nacey and W. B. Oliphant were appointed as a committee.

President T. C. Boyd read his annual address, which was full of wise recommendations, valuable advice and comments upon the proper performance of work. He concluded by saying: "In June, 1886, there were 140 members in good standing, January 1, 1887, there were 161. I leave you prospering, with money in your treasury. On the road to prosperity there are no grogshops, and you should be industrious."

A vote of thanks was tendered by Mr. Wade to the retiring officers, especially the president. It was carried by a unanimous standing vote. The following officers were elected: President, Robert Griffith; vice-presidents, J. J. Wade, William Sims, M. J. Reilly, Frank Ruh and William Wilson; recording secretary, J. R. Alcock; corresponding secretary, C. S. Wallace; treasurer, J. J. Hamblin; financial secretary, William Sims; sergeant-at-arms, P. L. O'Hara. For chairman of committees: Sanitary committee, C. J. Brooks; arbitration, William Wilson; auditing committee, Rupert Coleman; license committee, D. J. Rock; legislative, M. Ryan; apprenticeship, David Whiteford; conference committee, J. S. Bassett; library, George J. Stokes; warehouse committee, Hugh Watt; exhibit, T. C. Boyd.

A New Sanitary Exhaust Ventilator.

IT is not often that so valuable an appliance is brought to the notice of architects and sanitarians as that presented by the Holbrook and Mann Sanitary Exhaust Ventilating and Heating Company of Chicago. The operation is simplicity itself, and is as effectual as it is simple. The apparatus consists of a gas-jet in an air chamber which draws the foul air out of schoolroom, vault, or any other place usually difficult to ventilate, and replaces it with perfectly pure air. The apparatus was first brought to the attention of a representative of this journal by one of the leading architects of Chicago, and his endorsement was so unqualified that a thorough investigation was made.

Among other tests, one at the Calumet School building, one of the oldest in the city where no provison for ventilation had been made, was visited. Here three ventilators were in operation, two in the schoolrooms, and one in the boys' closets. An unventilated room was first visited, and though on the south side of the building, and ample windows, the air was close and disagreeable. Then we stepped into one where the ventilator had been placed. Here the air was as pure as out of doors. The closets (said to have been the worst kept in the city) located a plain boxed house, fifty feet from the school building were as perfectly ventilated. Some figures were gathered from tests made, showed that in a room 28 by 30 feet, thirteen feet high, with a ventilating flue 18 inches in diameter, the air was exhausted at the rate of 761 feet per minute, or 45,660 feet per hour, or the air was changed in the room four times per hour. This was by the use of six 3-foot burners consuming 18 feet of gas per hour, which being in use eight hours per day, would cost about fourteen cents per day for ventilation. There were fifty pupils in this room, and this test would allow 913 cubic feet of air per pupil per hour. The ventilator is certainly remarkable in its work, and should be examined by not only architects, but by school and municipal boards. It has already received the indorsement of the highest sanitary authorities and experts of Chicago, and its cheapness as well as its efficacy, will recommend it. It is at once positive in its operation, and specific results can be attained in each application. This is the only system that we know of by which the amount of air to be exhausted can be mathematically calculated beforehand with certainty.

New Publications.

ALBUM OF CRANE DESIGNS, published by the Yale and Towne Manufacturing Company of Stamford, Conn.

This is one of the most valuable pamphlets upon the design and use of cranes obtainable. It is in many respects novel in form and presents the subject of which it treats much more fully and clearly than has heretofore been done. The use of mechanical appliances for handling loads economically being in its infancy in this country as compared with the countries of Europe, especially England, this book will be found a real and practical service as well of general interest to architects and contractors generally.

A SEASONABLE greeting, which the A. A. Griffing Iron Company sends to its friends and patrons, is one of the most tastefully composed cards ever issued for trade purposes. It is in four leaves of rough card board. On the front leaf, embossed in gold, is a Bundy radiator and name of the firm. Then a leaf with the compliments of the season, embossed in gold. On the last leaf is a steaming kettle, embossed in cololors, which, with the legend, "Should auld aquaintance be forgot," is suggestive right good fellowship, and perhaps as indirectly contains a hint of the solid comfort found in the use of Bundy radiators.

SCRIBNER'S MAGAZINE for January, 1887, is the first number of a new periodical, but the title is familiar and revives thoughts of the Scribner's Monthly of a few years ago. This magazine has been awaited with interest and curiosity, and in no way falls short of the high expectations formed of it. Its name is a recommendation, and an examination of its contents shows it at once to be a full-fledged magazine, without having had a period of infantile growth. The cover, which is simple and unpretentious, is the design of Mr. Stanford White, architect, containing the title in plain letters, surrounded by a conventional border. The illustrations are good, and not too numerous, the aim being, in all cases, to subordinate the pictures to the text. The present number contains a full quota of articles of general interest. After a frontispiece of Gambetta proclaiming the Republic of France, comes Reminiscences of the Siege and Commune of Paris, by ex-Minister Washburne. The first installment of a novel by Harold Frederick, "Seth's Brother's Wife," follows. H. C. Bunner gives the opening chapter of "A New York House." Though both of these start well, the plots are hardily advanced enough to indicate the tendency and result. Capt. F. V. Greene contributes a timely paper upon our defenseless coasts, in which, with the aid of illustrations, he shows what is needed to prepare our seaports for defense in case of foreign invasion. These, with poems and complete short stories of lively interest, make up the number. As a whole, it is pleasing and attractive, and will find a welcome place, ready and waiting, and will command the attention of the intelligent reading public.

IN the last issue of *L'Emulation*, the journal of the Societé Centrale d'Architecture de Belgique, appears the announcement of the death of Mr. Charles Claesen, one of the editors of the paper. Mr. Claesen was held in high esteem by his confreres, having been one of the few editors, who have devoted their energies to the propagation of books on architecture, thus rendering a real service to the entire architectural profession.

IT is pleasing to note the evident success of our excellent contemporary, the *Northwestern Architect and Improvement Record*. It is managed by men of business ability, and edited by bright journalists who are doing all that seems possible with the material at their command. The section it represents, of which Minneapolis and St. Paul are the center, will owe much of its success, in obtaining good construction and pleasing architectural effects in its upbuilding through the active work done by this journal. We heartily recommend the *Northwestern Architect* to the examination and consideration of architects. It well merits a full support from the profession.

UNDER the heading of Church Decoration, *The Churchman* will print during the present year a series of articles intended to promote the beautifying of churches. They will treat of such topics as the arrangement of grounds about churches, of interior decorations, of furnishing and memorials and other features that are noteworthy and suggestive. This series is published under the superintendence of Mr. Charles R. Lamb, and among the writers already secured are Calvert Vaux, architect; Henry M. Congdon, architect, and Prof. Sturgis; Walter Crane, Henry Holliday and Lewis F. Day, of London; W. J. Stillman (Rome), R. Cleveland Coxe, James B. Townsend, W. A. Coffin, Charles De Kay, Roger Riordan, William Walton, Helen Hays, Mary Gay Humphreys, Alice Maud Fenn, and Lilian Bayard Taylor.

Mosaics.

MARTIN RYERSON is to erect at the corner of Market and Adams streets an eight-story warehouse, to cost $400,000. Adler & Sullivan are the architects.

THE Bricklayers' Union has at last selected the plan for their $30,000 hall, which is to be built at the corner of Monroe and Peoria streets, and the order has been given to the architect.

IT is interesting to note that over 200,000 of English enameled brick have been imported by one Chicago firm, Messrs. Lockwood & Kimball, the pressed brick dealers, during the past year.

MR. V. LE HURAY, who has been for three years the New York manager of Messrs. Merchant & Co., of Philadelphia, has left for London, England, where he will remain permanently located, conducting the office that firm has opened there.

WE have received the catalogue of the architectural works published by the late Charles Claesen, of Brussells. Many of the books are not sold as new, having been some time in stock. A proportionate reduction to their condition will be made, said reduction being from 15 to 25 per cent.

LETTERS are continually received from all parts of the country, inquiring where portable houses can be obtained. This may be that no advertisement of such is found among the advertising pages, but it certainly shows that there is a large demand, and somebody could make money by filling it.

THE contract for the steam heating of the Cincinnati Chamber of Commerce building is awarded to Henry Tudor & Co., of Chicago and New York; also that for the Union Depot at Indianapolis. These, with the contract for the Marshall Field warehouse, which is also awarded to this firm, agregate over $100,000.

PHILIP WILSON, of Chicago, is doing water color perspective work for architects. He is spoken of by those for whom he has done this class of work as being a first-class draughtsman and colorist. Those who require water color perspectives can have his valuable services by applying to the publishers of THE INLAND ARCHITECT.

HENRY MCSHANE & COMPANY, of Brooklyn, are calling attention to their "McShane A Number 1 Closet," a plunger closet, which has no springs, pistons or cupleathers, and will work without jar under any pressure, and can be readily repaired by any plumber. Their Crown stoneware laundry tubs are supplied at about the cost of wooden tubs.

THE foreign journals announce the discovery by a Chinese gentleman of photography in natural colors—the realization of the dreams of all our photographers, from Daguerre's day down to our own. The process, it is to be hoped, is simpler than the name of the inventor, Azurizawa Ryochi Nichome Sanjukanboz Kiobasni-Ku. The photograph taken was the Island of Enosbima.

ARCHITECTS FLANDERS & ZIMMERMAN have prepared plans for Messrs. Griffin & Dwight, for a theater building, 120 by 190 feet, on West Madison street, east of Halstead street. The building will be divided into two sections, the store and office building in front, and the theater proper in the rear. It will be five stories and basement in height, Bedford stone front, French roof; estimated cost, $200,000. A full description will be given later.

THROUGH an oversight in the advertisement of "Wolff's Transparent Paints," for interior wood finishing, in last month's number of THE INLAND ARCHITECT, the address was omitted. Readers who have written to this office for the address, and such others as wish the catalogue advertised, consisting of eighty pieces of veneers finished with Wolff's Transparent Paints, should address Wolff & Randolph, 933-935 N. Front street, Philadelphia, Penn.

THE Standard burglar proof rein door locks and also the sash locks made by Nimick & Brittan Manufacturing Company, of Pittsburgh, are said to be the acme of perfection in door locks, combining simplicity, durability and efficacy. The burglar proof attachment is operated by a cam on the rein locks, which, when adjusted, prevents the movement of the latch and lock bolts. They also manufacture a mortice lock similar in design and efficiency.

PETROLEUM AND NATURAL GAS is the title of a pamphlet published by the Chicago, Rock Island & Pacific Railway and dedicated to the boys and girls of America. It is a delightfully written description of a trip among the oil and natural gas wells. It is worthy the attention not only of young people in search of valuable information, but those older who are not only interested in oil and gas, but are travelers and can appreciate the great Rock Island route.

A. C. HICKEY is busily engaged in placing his sun burner and stage appliances in the new opera house at Warren, O., and in Meyers' Opera House at Janesville, Wis. He is meeting with exceptionally good success with his burner. He has also received the contract for the plumbing and gasfitting in two four-story flat buildings to be erected on West Indiana street, Chicago, for A. G. Byers. And is also overhauling the plumbing and gasfitting in the Continental Hotel at the corner of Wabash avenue and Madison street.

THE new Produce Exchange at Duluth, Minn., was formally opened on the 2d inst. There were about 100 gentlemen present, and the speeches were general and enthusiastic on the subject of Duluth's development. One gentleman called attention to the fact that "the situation as regards building material was incomparable, having plenty hard and soft woods and the best of building stone." And another expressed the general tenor of the speeches when he said, "Duluth will sprawl all over the Northwest, from Alaska to Omaha."

MR. R. F. BROWN has during the past year completed many large contracts for heating private and public buildings with "Brown's Hot Water Heater." He claims that it insures the greatest economy, while it produces health and comfort; the system presents many advantages, and can be operated with perfect safety by any inexperienced person. "Summer in winter" seems to be realized by this system, as all who are using it unite in saying that at a small expense they manage to keep a uniform and comfortable heat, even in the most exposed buildings.

THE Dunreath sandstone quarries are located near Des Moines in Iowa. The quarries produce a rich red and a number of variegated colors. It is a bluff formation above drainage, which is a guarantee that the colors are naturally set and durable; also renders this quarry one of the few which are worked during winter. It is a stone readily worked, with fine effects carved, and can be used to advantage in most of the various forms of building construction. The offices of the company are located at St. Louis. Lord & Eiker are the agents of the Company in Chicago.

A CIRCULAR issued by the Union Foundry and Pullman Car Wheel Works, of which Geo. M. Pullman is president, states that "the entire interests in the company, of the Boutons and of the Union Foundry Works have been purchased and a complete re-organization effected, and that a general foundry business, especially including car, machine, gas and architectural work will be continued with greatly increased facilities. It is the purpose to make this the most extensive and complete works of the kind in the country." Geo. H. Cole is the General Agent of the company, with offices in the Pullman building.

OWNERS of sawmills, planing mills, furniture factories, cotton gins, and in fact all manner of manufacturing establishments, where there is great danger from devouring fire, and insurance is correspondingly high, should lose no time in adopting every means of protection from the destructive element. Among other things, iron roofing and siding is extensively used to protect from fire originating on the outside, and corrugated or crimped iron ceilings and interior linings to protect inside woodwork. Prominent among the manufacturers of iron roofing, siding, ceiling, lining, etc., in various styles, is the Cincinnati Corrugating Co., whose mammoth works are located on Eggleston Avenue, Cincinnati, Ohio.

AMONG many similar testimonials received by Messrs. Thomas Kelly & Bros., the following is selected as showing the widespread nature of their trade:

CITY ENGINEER'S OFFICE, SACRAMENTO, Nov. 29, 1886.

Messrs. Thos. Kelly & Bros., Chicago, Ill.:

DEAR SIRS,—I have seen your closets in operation here, and can truthfully say that they are, by all odds, the best automatic closets ever introduced or put in use here. They give a splendid flush. In fact, I recommended one for use at a point where a small flush tank was needed, and it works admirably. At the Western Hotel, in this city, the use of some ten or fifteen of these closets makes the water-closet arrangements the best of any hotel I have seen anywhere in the state. Yours very truly,

L. F. BASSETT, Civil and Sanitary Engineer.

The popularity of the automatic closets made by Thos. Kelly & Bros. is as general in the cities on our eastern seaboard.

WE take pleasure in making a mention of the deserved success of J. W. Taylor's architectural photograph series. Mr. Taylor started this venture several years ago, and by his personal travels through the eastern and western states he has collected over 1,200 architectural photographs, showing the progress as well as the various styles of architecture prevalent in different parts of this country. The new office buildings, costly residences and business blocks, luxurious interiors, rich details, public buildings and suburban homes, all find a place in this collection, to which Chicago alone has contributed over three hundred subjects. For 1887 Mr. Taylor promises five hundred new photographs from American cities. Architects and others visiting Chicago can spend an enjoyable hour at Mr. Taylor's studio, in looking over this endless collection of interesting views.

THE Bouton Foundry Co., just started at 2600 Archer ave., Chicago, has the largest and most complete foundry plant in the Northwest, for the manufacture of architectural and general iron work. They have adopted all the latest improvements, among which may be mentioned steam cranes of great strength and rapid motion, and a splendid system of ventilation and lighting, which enables the molders to work intelligently and comfortably. The office force is made up of Mr. N. S. Bouton, president, whose name has been at the head of the foundry business in Chicago for the last thirty years, and especially as president of the old Union Foundry Works, whose name is found on so many of our large buildings; E. G. Shumway, vice-president; F. W. Barker, treasurer, and Carl D. Bradley, secretary, all of whom have been connected with the old Union Foundry Works, and will be actively engaged in the new company.

A FEW days ago twenty-one of the leading "chefs" met at 76 Dearborn street, the office of the Goodwin Gas Stove & Meter Co., to test the various gas cooking appliances manufactured by that company. For some time past the range used by the celebrated caterer, Kinsley, has become so popular that it is now known as the Goodwin Gas Stove Meter Co., and on Kinsley's range a thorough test was made. Game, poultry and meats were cooked to perfection in an incredible short space of time. The meeting appointed a committee, who returned the following resolution: "*Whereas*, we have found, after a most careful inspection, that the gas cooking appliances of the Goodwin Gas Stove Meter Co., such as the Kinsley boiler, the cake griddle, the waffle baker, the sad-iron heater, the confectioner's stove and the family range, do perform to perfection every duty known to modern cookery; therefore, be it resolved that we, your committee, most heartily endorse and recommend to your favor and use the above mentioned gas appliances in preference to all other systems."

THE Cincinnati Chamber of Commerce building contract has been closed, the entire work having been awarded to Norcross Bros., of Worcester, Mass. There were only two bids for the entire work, the other bidder being the Hallowell Granite Company, of Chicago. The bids stood as follows:

ENTIRE BUILDING.

Hallowell Granite Co., Chicago—	
Jonesboro granite	$532,958 00
Norcross Bros., Worcester, Mass., six bids—	
Worcester granite	$524,000 00
Westerly granite	560,000 00
Missouri granite	596,000 00
Kibbe and Westerly	510,000 00
Denver and Missouri	525,000 00
Denver and Westerly	518,000 00

The contract was therefore awarded to the above firm, the building to be completed in eighteen months. The bids are given in detail on advertising pages.

THE iron business of Chicago has, during the past few years, developed into one of the leading industries of the city. In construction it is gradually driving out its old opponent, wood, and in our mammoth structures it is the principal factor. To accommodate the large increase of business, several enterprising firms a few years ago constructed large foundries, and with the present demand, will soon have to enlarge them. The variety of uses to which iron can be applied gives a wide range to the enterprising manufacturer, and allows each to make specialties of certain classes of work. The fire escape business, which a few years ago was considered a novelty, has attained such proportions that every level-headed tenant's first thought is to ask if the building is well-provided with these appliances. All our high buildings are fitted with them, and nearly all of them bear the mark of M. Benner & Co. No man understood better than ex-Fire Marshal Benner the use and necessity of perfect fire escape appliances. This firm have, during the past few years, added to their large trade the manufacture of all styles of building and architectural iron, and the many large contracts that the firm has executed in the past year are a sure indication of their popularity among architects and builders.

THE following circular letter has just been issued, addressed to the public libraries of the country:

OFFICE OF THE LA CROSSE PUBLIC LIBRARY,
LA CROSSE, WIS., December 1, 1886.

To .....

DEAR SIR,—The trustees having in charge the fifty thousand dollars, bequeathed by the late Governor C. C. Washburn, for the purpose of establishing and maintaining a public libraty in the city of La Crosse, have appointed the undersigned a committee on plans for a library building. As an aid to secure the best possible results, the committee have thougnt it advisable to issue this circular letter asking information, and send same to a number of the leading libraries of the country having capacity for about the same number of volumes we wish to provide for, and ask of such libraries the favor of cuts or sketches showing the style of building occupied by them, and the interior arrangement of same. We ask this information of you, and also request that you fill out the inclosed blank, and mail in envelope inclosed. We will feel under obligations for same, and for any suggestions you may make in addition.

Respectfully yours,

JOSEPH CLARKE,
JOHN M. HOLLEY,
F. A. COPELAND,
} *Committee.*

The questions asked are as follows:

What is the name of your library? In what city is it located? In what state? Who designed building? Give address. When was it built? Is it built of brick or stone? What are outside dimensions on ground floor? If interior is of more than one room, give size of each. What did building cost? How much additional for shelving? How is building heated? What did heating apparatus cost? How is building lighted at night? Would you suggest any improvement in your building? How many volumes have you now? What is your additional capacity? Give name and location of any library building you would recommend as a model. Have you printed by-laws and rules? If so, please send copy. Please give name of person to be addressed in case of future correspondence.

This committee evidently intend discharging their duty fully, and giving to La Crosse as good a library as the money can buy. If they continue their good work they will select as architect one who has a reputation rather than one who has influence, and for this reason plans that are offered for nothing, if any such are presented, should not be considered.

As far back as history can reach we find the use of glass. The Egyptians understood the art of manufacturing white and colored glass, of carving and gilding it, and many of the ornaments discovered in the catacombs of Thebes and Memphis bear evidence of their proficiency in its manufacture. Sixteen hundred years ago the glassmakers had become so numerous in Rome that special quarters in the city were allotted to them. Later, Venice became the center of the manufacture of glass, and the skill of its artists has not been surpassed to this day. The art of carving glass and transforming its plain surface into an article of ornament was first dis-

covered by a German artist, Gaspard Lehman, in the sixteenth century, though it is claimed that its origin dates to the old Roman epoch. However, with the progress of all industries, glass engraving has made rapid strides: with our modern appliances and ingenuity, what used to be the work of months of toil, is now accomplished in a comparatively short time. The finest design can be carved on glass, thus giving all the advantages of light with pleasing and artistic effect. This brilliant and useful substance has not been neglected in the United States, and no better examples of the progress of ornamental glass can be found than in the goods manufactured by the Western Sand Blast Company of Chicago. Employing, as they do, a select corps of artists, their work has become a synonym of perfection and a trade mark in the country.

Opening a Railroad.

AN excursion party, composed of leading Chicago contractors, in response to an invitation extended by the Pioneer Fireproof Construction Company, recently visited the works of the company at Ottawa, Illinois, the object being to "open a railroad." The "railroad" over which the company were favored with free annual passes, was found to be a tramway, about a mile and one-half long, to be used to haul the clay from the mines of the company to the works. The party included George C. Prussing and John Goebel, prominent Chicago builders, Fred C. Eames, of the Commercial National Bank, and others. The works were visited and inspected, the vast building now nearing completion, where the company will manufacture firebrick. etc., was commented upon, and after a viewing of the clay mines of the company, which are pronounced incomparable for fineness of the clay and its accessibility, the guests sat down to a substantial and elegant dinner at the Clifton House. Here the after-dinner speeches, while in some degree technical, verging upon the laudatory, when the works of the company and its officers were mentioned, were witty, and appreciated by the assembled guests. Mr. E. V. Johnson, general manager of the company, proved an entertaining toastmaster. Many toasts were responded to,—those by Dr. Smith, and the editor of the Ottawa *Journal*, being especially felicitous. The next item on the programme was the important one of driving the gold spike, and formally opening the railroad, which was done, and the blows which fell on the spike were accompanied by the wish, that the company in its business transactions might always hit the nail on the head. The company returned to the city the following morning, having been handsomely entertained and in possession of a valuable understanding of not only the many advantages of hollow tile for fireproofing purposes, but of the process of its manufacture.

Ives' Process Engraving.

THE cut of the Rialto building in this number is a specimen of photo-mechanical engraving by the Ives' process. It was invented by Mr. Ives, in 1878, and introduced into successful commercial operation in 1881. It is controlled by the Crosscup & West Engraving Company, 907 Filbert street, Philadelphia, a specimen of whose process is in this number. We copy as follows from their circular:

The Ives process is adapted for producing plates from all kinds of photographs (negative preferred), brush drawings, and similar copy not already made up of sharp lines or dots. A very important application of Ives' process is for the reproduction of portraits, for which purpose it is superior to all other typographic methods, because it preserves the likeness with photographic accuracy.

Photographs, negatives, ferrotypes, or drawings made with the brush, crayon or pencil, may be sent, and such copy, if to be worked from direct, *should be very perfect*. The process does not improve upon copy, but follows with photographic accuracy, all faults or imperfections (if any there be) in the original. When it is impossible to secure good copy, we can retouch or make a new drawing, and such retouching or drawing will increase the expense according to the labor expended.

Good plates can always be made from good photographs, but *better plates can be made from original negatives*, which should be sent whenever they can be obtained. We prefer negatives fully exposed, rather thin, and rich in detail both in shadows and high lights; but any good negative is better than a print made from it. We can enlarge or reduce as may be required; the enlarging, however, has a tendency to magnify imperfections more or less according to the enlargement. Reducing tends to improve.

Very fine woodcut, steel-plate and lithographic prints, which admit of little or no reduction by the ordinary photo-engraving process, may be reduced by Ives' process to any size desired.

Elevators in England.

IT was an interesting comment upon the superiority of American elevators, that was developed by a conversation said to have taken place between a prominent architect, from the United States, and a number of English architects at London. The subject of high buildings was discussed, and Hale Elevators were mentioned as being in general use in them. Said an English architect, "Ah, but your lifts, how high do you run them up?" Said the American, "To the second story, we walk the remainder of the distance." "Ah! but really, now: How far do you run them up?" "To the top of the building, of course." "And your buildings are, some of them, over a hundred and sixty feet high?" "Yes, what of it?" A "now-I've-got-you" smile wrinkled the face of the Englishman as he said, "Then how do you manage to dig a hole for the counter-balance one hundred and sixty feet deep?" A slight smile was indulged in by the architect when he explained, "Oh, we had such an elevator as you describe in Milwaukee, or somewhere, twenty years ago, but we haven't seen one since." The Hale Elevator came into general use about that time, or a little later, and in fact the architect might have gone farther into the subject and shown how it was the elevator that had made high building possible. This conversation occurred some time ago, and the Hale elevator so universally used in the United States, the efficiency of which is so well shown in those in the Rialto office building, illustrated in this number, as well as in a dozen other of Chicago's latest structures, is fast supplanting those of English make in England.

Railroad Notes.

THE Chicago, Rock Island & Pacific Railway is out with a new list of dates for its unrivaled first-class excursion to California, covering several dates (by all routes) during the months of December, January, February and March, at extremely low rates. For detailed information, tickets, sleeping car accommodation, etc., apply to nearest ticket agent, or address, E. A. Holbrook, G. T. & P. A., C. R. I. & P. Ry., Chicago, Ill.

INTELLIGENT people who are familiar with the respective advantages which are offered by the several competing railroad lines between Chicago, St. Louis and Kansas City, and who desire to travel with the utmost speed, safety and comfort, always take the popular and reliable Chicago & Alton railroad between those points, and passengers going to or coming from the South via St. Louis, or when going to or coming from the West via Kansas City, should insist upon having tickets that read over the Chicago & Alton. It is the only road with two complete and elegantly equipped dining trains daily between Chicago and each of the points named, and no railroad managers in America have a more intelligent appreciation of the wants of the traveling public than do those of the famous C. & A.

THE Missouri Pacific Railway, from St. Louis to Kansas City, with its branches and leased lines to Wichita and other points in Kansas, and down through the Indian Territory into Texas, is now one of the greatest and most complete railway systems of the world. No finer cars are made than the day cars, reclining chair cars, sleepers, etc., that run daily and nightly from St. Louis on this line. The track is admirably smooth and perfect, the long trains start and arrive promptly on time, and there is shown a courtesy and attention to passengers which is as agreeable as it is rare. The travel over this route is so heavy that the evening trains from St. Louis are now sent out in two separate sections, one starting ten minutes later than the other. The main road runs through one of the oldest and finest sections of Missouri, the trains are seldom obstructed by snow, and no route in the country presents more attraction to travelers bound westward in the winter season than the Missouri Pacific Railway.

A NEW fast line to St. Paul and Minneapolis is now opened from Chicago, Peoria and St. Louis, via the "Burlington Route,"—Chicago, Burlington & Quincy Railroad,—in connection with the newly-completed Chicago, Burlington & Northern Railroad. Over it a double service of through trains is run, making as fast time as is made over any other line between the same points. The new and elegant equipment composing these trains, which was constructed especially for service on this new line, will include Pullman Sleepers, "Burlington Route" Dining Cars and comfortable Passenger Coaches. From both Chicago and St. Louis through Coaches, Dining Cars, and Sleeping Cars are run; and from Peoria, through Coaches, connecting at Rio with the through equipment from St. Louis. For tickets, rates, and general information concerning the "new fast line" to St. Paul and Minneapolis, via the Burlington Route, call on or address any Railroad Ticket Agent, or PAUL MORTON, G. P. and T. A., C., B. & Q. R. R., Chicago.

Building Outlook.

OFFICE OF THE INLAND ARCHITECT
CHICAGO, Ill., January 10, 1887.

It is not at all to be wondered at that capitalists, manufacturers, architects, builders and business men, great and small, should be extremely solicitous about the course of trade, prices and building during the year 1887. The country has had a taste of prosperity, and wants more. The producing interests throughout the country are citing, and talking conservatism, lest the improving tendency be destroyed by a sudden over-production and a gorging of the channels of trade with goods and material. Investors are on the alert for valuable investments in railroad, manufacturing, building or speculative channels wherever favorable opportunities may be found. The money markets are fairly well supplied with money and lenders are seeking borrowers in most markets, especially where large blocks of capital are under control. Every now and then a slight stringency in money occurs between small borrowers and lenders, but taking the monetary situation as a whole, rates of interest are in favor of borrowers, and the volume of circulating medium is likely to increase rather than decline. The silver party are gaining in numbers and political and commercial strength, but they will have a difficult battle with the opponents of their theories among Eastern lenders, who have always looked upon even a limited coinage of silver as an evil to be removed as soon as possible. Just at present there are no ugly features in the monetary situation. This fact is money, because all depressions begin with some disturbances or entanglements in monetary matters. Our financiers and law-makers recognize the necessity of watching the currency requirements of the country very carefully, and will be slow to recommend or endeavor to carry out any policy which would antagonize the interests of the producing masses as against the mere money lenders. The year has closed under very satisfactory conditions, and the industries have been fully employed for at least five months Capacity in every branch has been enlarged and manufacturers of all kinds of products and commodities are oversold far in excess of what is usual at this period.

Trade combinations are being formed with a view of protecting the interests of each. In several branches, manufacturers are either declining to accept large orders or are advising their customers to defer the placing of orders until later in the season. There is a strong upward tendency at work in iron, steel, lumber, hardware, railway building material and in machinery, as well as in the multitude of smaller channels. It is possible that such an advance will be made in 1887 as will induce manufacturers to forego the advantages of a heavier trade. This evil, however, is recognized, and will be guarded against carefully. There is a strong temptation to unduly increase capacity. Manufacturers who find orders pressing upon them for material to be delivered three or six months hence certainly feel like building new works or extending their old ones. But in this lies a great danger. This unusual demand is, to a large extent, an unnatural one Not more than a year ago it was stated and repeated in trade papers that the productive capacity of the country could make in six months what could be used in twelve. We have passed that condition, and find that buyers who want material are obliged to order

from three to six months ahead. This condition of things certainly cannot last. It would be therefore wise for manufacturers if they will enlarge their capacity to do so with cash in hand rather than to borrow money to make their improvements. If there is a fall, their loss will fall upon themselves, and they will avoid the strain and anxiety of struggling through a year or two of depression to pay for unproductive property. The volume of building during 1886, when the statistics are carefully gathered, will, no doubt, be found to be somewhere in the neighborhood of twenty per cent in excess of the previous year. It is quite probable that 1887 will run ten, fifteen and possibly twenty per cent ahead of 1886. The iron trade is regarded as the barometer for all others. In 1885 our main line mileage reached about 3,000; last year our main line mileage has reached fully 8,000 miles. At this time the rail makers have sold rails enough to lay over 11,000 miles of road, and have capacity to turn out rails enough to lay about 18,000 miles of road altogether. Our American rail-making capacity is not sufficient for home requirements, the output of the largest rolling mill in the West being already sold up to next October. Already over 100,000 tons of foreign material have been purchased, and brokers in Philadelphia and New York are negotiating this week for large additional supplies, which will be wanted as fast as they can be delivered. Under this stimulus European and British markets are improving. The bridge builders of the United States formed an association a few days ago in New York, representing $70,000,000 of capital. The bar-iron makers have their association, the nail makers, theirs, the wrought-iron pipe makers, theirs, and, in fact, every branch of the iron and steel industry is compactly organized, and statistical information of great value is promptly exchanged, so that all may know how to control their respective interests to the best advantage. The builders throughout the West, as well as the East, have had a very prosperous year, and are confident that the current year will bring them more work and better prices. This prosperity is due very largely to the fact that emigration is extending throughout the West and Northwest. New shops, mills and factories are springing up where they were never expected. Valuable deposits of coal are found in regions where coal was never supposed to exist a few years ago. Railroads and coal mines have laid the foundation for the development of new and diversified industries throughout the region beyond the Mississippi. This development means an increased demand for manufactured products, and for the skill of architects and for the services of builders.

Synopsis of Building News.

Ambia, Ind.—Chas. L. White is a member of a banking company who propose to erect a two-story brick bank building, 22 by 60 feet; to cost $5,000. No architect yet employed; S. Fix, mason; Joseph Camyan, carpenter. Building to be commenced March 1, 1887.

Buffalo, N. Y.—Architect W. W. Carlin reports: For G. R. Porter, alterations in house; cost $2,000; J. Jaeckle, builder. For J. D. Larkin, frame residence and stable, on Hodge avenue; cost $3,500; J. Jaeckle builder. (These two buildings were by error credited to Architect Humble in our October issue.)

Architects C. K. Porter & Son report: For Church of Christ, redstone church building, corner of Richmond avenue and Bryant street; cost $18,000. For Plymouth congregation, redstone church building, corner of Plymouth and Porter avenues; cost $50,000.

Architects Green & Wicks report: For St. Luke's Church, chapel on Richmond avenue; cost $10,000.

Barton, Wis.—Architects Edward V. Koch & Co., of Milwaukee, report a school house and sisters' residence combined; cost $8,000; gas machine, school furniture; contracts not let. Rev. Rockingruver, pastor.

Bentonsport, Ia.—J. F. Mason has prepared plans for J. F. & E. R. Mason, for a two-story frame factory building, 60 by 200 feet, iron or felt roof, steam heat and power, electric bells and electric lights; cost $5,000; to be commenced in January, 1887. The barb wire and soap factories (one-story frame buildings) are to be commenced at the same time.

Cedar Rapids, Ia.—Architect W. A. Fulkerson reports: plans for M. S. Jackson, two-story frame dwelling, 30 by 40 feet; cost $2,200. Plans for remodeling frame dwelling for J. T. Hamilton; cost $2,000.

Cedartown, Ga.—Architects Bruce & Morgan, of Atlanta, report: For the School Board, two-story frame schoolhouse, six rooms; cost, $4,000; contracts not let; address A. Richardson, clerk of board.

Chicago, Ill.—The building statistics of the past year have been a surprise even to those most actively engaged in construction. In spite of the strikes in May, that entirely stopped all classes of building, the amount of permits issued during 1886 exceeded the previous year in amount of cost by $1,702,300, showing the largest amount of building done in five years. The following tables will show the figures in a condensed form for different sections of the city, the total in classes and grand total, and a comparison of the five previous years.

		FEET.	COST.
1886.	South Side, 1,107 buildings	27,641	$ 8,622,900
"	North " 620 "	16,574	3,342,900
"	West " 2,937 "	68,087	9,358,600
Number of buildings constructed			4,664
"	" basements		453
"	" feet (lineal)		112,302
"	" sheds and barns		1,703
Cost			$21,324,400
Number of passenger and freight elevator inspection certificates			340

	TOTALS FOR FIVE YEARS.	FEET.	COST.
1882.	Number of buildings	3,113	73,161	$15,842,000
1883.	" " "	4,086	85,588	17,500,000
1884.	" " "	4,169	98,782	20,689,600
1885.	" " "	4,638	108,850	19,624,100
1886.	" " "	4,664	112,300	21,324,400

The real estate transfers for the past four weeks show a greater activity than at any period since 1871, and as in building this is not an unhealthy movement, seems to have none of the characteristics of a "boom." Still in the face of these facts, rents for both offices and residences are low. In office buildings there are large numbers of offices unrented.

About $100,000 has been appropriated by the city Board of Education to be expended for new school sites during the year; $500,000 is appropriated to build new schoolhouses. The average cost of a fifteen-room building is about $50,000.

The Cooke Brewery Company, which purchased the P. O'Neill property, corner of Twenty-seventh street and Johnson avenue, is engaged in the erection of a fireproof five-story and cellar brewery building, 91 by 46 feet, which is to be a model in its way, and is to cost $75,000. The capacity will be two hundred barrels a day. The engine-room will be twenty-one feet high, and the full length and width of the building. Steel joists and brick arches will be used in the floors. The building will be completed by March 1.

Architect W. G. Barfield: For Board of Education, at Lake View, three-story school building, 70 by 86 feet, Indiana brick, Bedford stone trimmings, furnace heat; cost $22,000. For M. G. Good, three-story stores and flats, 95 by 80 feet, corner Western avenue and Harrison street, Anderson brick and Bedford stone; cost $30,000; under way; Paul & Porter, masons; Peter Jansen & Co., carpenters.

Architects McAfee & Lively have prepared plans and let contracts for three two-story frame dwellings for a private party, to be built on Cottage avenue, near Forty-fifth street; cost about $7,500. Also a two-story frame store and flat building in same locality, for Mr. J. Nord; cost $3,000. Also brick factory building for Mrs. L. J. Colburn, North May, near Chicago avenue; cost $2,500.

Architects Adler & Sullivan have prepared plans for R. T. Crane, for an additional story to building corner of Judd and Wilson streets, 130 by 200 feet; common brick; cost $14,000; Barney & Rodatz, masons; Wintermeyer & Dempsey, carpenters.

Architect H. R. Wilson has prepared plans for G. W. Parke, for a two-story brick dwelling, 30 by 60 feet, corner of Monroe and Leavitt streets; contracts include galvanized iron cornice, iron beams, channels, etc., hardwood finish, steam heat, wood mantels, skylights, stained glass, closets, baths, etc., electric lighting, bells, speaking-tubes; also, stable; cost of improvement, $10,000; under way; Geo. Lehman & Son, masons, Visser & Miller, carpenters.

Architect C. O. Hansen has prepared plans for T. Winholdt, for a three-story store and flats, 27 by 90 feet, at 477 Indiana street; St. Louis pressed brick, Lemont stone trimmings; cost $12,000; under way; G. Gilbert, mason; V. Lund, carpenter.

Architects Burling & Whitehouse report: For E. H. Sheldon, eight-story warehouse, 69 by 146 feet, at 150 and 152 Quincy street; St. Louis pressed brick, Marquette stone trimmings; cost $80,000; under way; Barney & Rodatz, masons; Wm. Goldie & Son, carpenters. For St. Vincent Orphan Asylum, four-story asylum, 120 by 96 feet; at 185 to 191 LaSalle street; Anderson pressed brick, buff Bedford stone; cost $75,000; under way; Barney & Rodatz, masons; John McEwan & Son, carpenters.

Architect Austin Moody has prepared plans for W. H. Davis for a six story warehouse, 50 by 90 feet, at 22 and 24 Fourth avenue; contracts include iron channels, beams, etc., galvanized cornices, felt roof, skylights, passenger and freight elevators, steam heat and power, closets, etc.; cost, $50,000; under way; Wm. Iliff, mason.

Architects Sprague & Newell have prepared plans for Mr. Oscar Burdick, for five two-story dwellings, 100 by 62 feet, on Oakenwald avenue, pressed brick, brownstone, galvanized iron cornices, felt roof, skylights, stained glass, closets, baths, etc., hardwood finish, wood mantels, hot air heat, electric bells, speaking tubes; cost $20,000; contracts not let; to be commenced in the spring.

Architect H. F. Starbuck reports: For F. S. Belden, three three-story dwellings, 80 by 50 feet, on 43d street, near Lake avenue, Tiffany pressed brick, galvanized iron cornices, felt roof, ironwork, skylights, stained glass, marble mantels, closets, baths, electric bells and speaking tubes, freight elevator; cost $15,000; under way; George Williams, mason; F. N. Chilins, carpenter. For D. F. Bacon, two two-story brick dwellings, 50 by 50 feet, on South Park avenue; cost $11,000; under way; Daegling & Thompson, masons; W. J. Graham, carpenter.

Architect J. H. Moore has prepared plans for Dr. E. P. Murdock, for a three-story dwelling, 27 by 68 feet, at 148 Loomis street; cost $9,000; Tobiasson & Co., masons; C. C. Building Society, carpenters.

Architect Theo. Karls has prepared plans for Wm. Jacobs, for a two-story livery stable, 50 by 100 feet, at 266 to 272 Lincoln avenue, Anderson pressed brick, buff Bedford stone trimmings; cost $10,000; under way; G. Soeffker, mason; M. Bender, carpenter.

Architects Enders & Warnek report: For Mrs. C. Cook, two three-story dwellings, 56 by 64 feet, 3737 to 3741 Ellis avenue, St. Louis brick, brownstone, galvanized iron cornices, slate or felt roof, skylights, closets and baths, hot air heat, hardwood finish, tiling, wood mantels, electric bells, speaking tubes, dumb waiters; cost $15,000; under way; Goodrich Bros., masons. For Jos. Rosenthal, two-story and basement dwelling, 22 by 62 feet, on McAllister place, St. Louis brick, terra-cotta and Euclid stone, galvanized iron cornices, felt roof, closets and baths, stained glass, hot air heat, wood mantels, electric bells and speaking tubes; cost $5,800; bids closed. For S. Thomas, three-story flat building, 23 by 50 feet, on 31st street, Indiana brick, stone trimmings, galvanized iron cornices, felt roof; cost $3,900; under way; Chr. Geyer, builder. For W. T. Belke, two-story store and flat building, 25 by 80 feet, on West Van Buren street, St. Louis brick, stone trimmings, galvanized iron cornices, felt roof, stained glass, closet and baths, wood mantels, stable; cost $4,570; under way. For Franz Junek, three story store and flat building, 22 by 65 feet, 636 West Chicago avenue, Indiana brick stone trimmings, galvanized iron cornices, ironwork, felt roof, closets, baths, etc., stained glass; cost $4,600; under way.

Cincinnati, Ohio.—Reported by Mr. L. Mendenhall: The very open winter has been profitably taken advantage of by all contractors, and buildings started in the fall, as well as those which were delayed by the strikes, are well in hand. I know that all the contractors feel kindly toward their employés, and wish them "A Happy New Year."

A private letter from a Cincinnati architect states that the "Building Exhibit," which is started by an organized company, made up largely from among the architects and members of the Builders' Exchange, "is an assured success, all the stock being taken. Quarters have been secured in the exposition building, where a large portion of the space is already engaged The fact that it will always form a part of our regular expositions gives it an increased value." The letter also states that "trades unions connected with the building interests are establishing their rates of wages about January, to extend through the year, which will avoid strikes."

J. Milton Blair, Esq., has been appointed delegate to the Boston Master Builders' Conference, from the Builders' Exchange, to be held January 11, 12 and 13.

J. G. Sohn's large brewery, on Hamilton road, is progressing finely, the plans being from the office of Architect F. W. Wolfe of Chicago. Brick, freestone, and terra-cotta ornaments enter into its construction, and it will be very complete.

Architect Samuel Hannaford has prepared plans for a new city Hall, a much desired and needed improvement; cost $800,000. It will be built if the legislature passes the bill to issue bonds for its erection.

Bids were opened on December 21, for the new Chamber of Commerce. A complete list of bids and bidders is published elsewhere in this issue. The contract was awarded to Messrs. Norcross Bros., of Worcester, Mass., at their bid of $524,000.

As it appears, there was no "capital prize" drawn by our local contractors, much to the disappointment not only of them, but the public generally. P. Murray, who is building the foundation, has done and will do fine work, although a little slow. The Board of Real Estate Managers are fortunate in having the superintendence of Mr. Elzner, once in the office of Mr. McLaughlin, of our city, but for a year or two in the office of Mr. H. H. Richardson.

The Emerys will erect flats on Race street, adjoining the arcade, which will be quite ornamental.

The architects and contractors are thoroughly in earnest in the inauguration of a Building Exhibit, which is bound to succeed.

Architect Jas. W. McLaughlin has prepared drawings and plans for a new Young Men's Christian Association Building, to be built of pressed brick, terra-cotta and freestone trimmings. The building is to be five stories high, with slate roof, and to contain gymnasium, baths, library, hall, reading rooms and class rooms, with stores on first floor. The size of the structure is 60 by 80, and, when erected, will be another architectural ornament to our rapidly improving cities. Cost, about $75,000.

A tramp through the various offices, shows that the craft feel more or less encouraged over the spring outlook, and it now rests with the laboring community to either pet or kill the goose which will lay a golden egg if she be not driven off the nest.

Cleveland, Ohio.—Architects Coburn and Barnum have prepared plans for Waltmer Otis, for a brick and stone theater and business block, on Euclid avenue; cost $100,000; contracts not let.

Architects Schweinfurth Bros. are making alterations in the Weddle House.

Colorado Springs, Colo.—Architects Wright & Davis report: For John Himebaugh, three-story brick hotel, 63 by 120 feet; cost $20,000; plans in preparation. For Dr. E. P. Anderson, two-story stone and frame house, 28 by 42 feet; cost $10,000; taking figures. For C. S. Wright, two-story frame house, 28 by 32 feet; cost $2,500; under way; Wright & Kenyon, builders. For Geo. Thomas, two-story frame house, 32 by 46 feet; cost $4,000; under way; Jos. Dozier, builder. For Giles Cressy, two-story frame house, 30 by 40 feet; cost $3,500; under way; S. E. Sessons, builder. For Herbert North, frame house; cost $2,000; under way; H. North, builder. For L. Elrich, making plans for residence; to cost $15,000. For J. Handley, making plans for residence, to cost $6,000.

Plans for steam heating of the Deaf-Mute Institute of Colorado are before the legislature for appropriation; estimated cost, $4,500.

Davenport, Iowa.—Architect J. W. Ross reports: Masonic temple building, 150 by 64 feet, four stories and basement, basement and first story to be built of stone, balance of brick; cost $40,000; contracts not let.

Detroit, Mich.—Architect Gordon W. Lloyd has prepared plans for D. M. Ferry & Co., for a brick warehouse; to cost $130,000. For the Western Knitting Company, brick factory building; to cost $20,000. For W. J. Chittenden, alterations in hotel building; cost $20,000.

Architects Wm. Scott & Co.; For Brush Electric Light Co., brick foundry, etc.; to cost $26,000. For Peninsular Car Co., brick building, on Ferry street; cost $10,000.

Architect Mortimer L. Smith: For Boorman & Chapman, brick factory building; cost $22,000.

Denver, Col.—Architects F. E. Edbrooke & Co. report: Outlook good for spring. For Patterson & Thomas, five-story brick block, 125 by 75 feet; redstone trimmings, steam heat, elevators, etc.; cost $100,000; basement completed; McPhee & McGinnity, builders. The Hughes Block, Denver Music Hall, two-stories, 125 by 80 feet, iron front; cost $20,000; almost completed; P. Peatfoot, builder. For R. R. Wright, two-story brick residence; cost $5,300; under way; J. Goodman, builder. For

C. D. Moore, two-story frame dwelling; cost $4,200; foundation in. For F. W. Kellogg, two-story brick dwelling; cost $3,700; under way; —— Bishop, builder. For A. B. Wyman, two-story frame dwelling; cost $2,900; under way. For G. Kasslar, addition to stores; cost $3,200; under way; A. C. Friedhoff, builder. For C. Clark, block of three-story stores, 62 by 90 feet; cost $18,000; just commenced; separate contracts.

The Denver City Railway Company are building a three-story addition, 125 by 58 feet, to their stables; cost $25,000.

Dexter, Mich.—Architect Claire Allen, of Ionia, has prepared plans for the School Board of Dexter, for a two-story schoolhouse, 79 by 83 feet; to be built of brick, stone trimmings; contracts will include iron channels, galvanized iron cornices, hard-wood finish, slate roof, Smead system of hot-air heat, stained glass, etc.; cost about $12,000; bids to be filed on or before December 22; building to be commenced about March 1, 1887; J. T. Hovey, director.

El Paso, Tex.—Architects Stewart & Carpenter report: For S. Hing, two-story brick dwelling; cost $4,000. For Judge Kemp, brick cottage; cost $3,000. For S. S. Gillespie, cottage; cost $3,000. For Irwin & Co., two one-story store buildings; cost $4,000. For Mrs. M. Townes, cottage; cost $2,500. For G. Ames, two-story frame residence; cost $5,000. For J. Wadlington, residence; cost $6,000. Also several large buildings contemplated, for which sketches are being made, besides considerable work in Mexico. For Chas. Merrion, three-story brick and stone store building; cost $25,000. For A. Schutz, frame residence; cost $4,000. Also several small dwellings. Prospects good for spring.

Fair Haven, Ohio.—Architects J. Stover & Son, of Hamilton, report: Two-story brick and stone schoolhouse: cost $3,500; under way.

Freeport, Ill.—Architect H. F. Starbuck, of Chicago, has prepared plans for the Episcopal Society pressed brick and stone church building; stained glass, hot-air heat; cost $15,000; to be commenced in spring of 1887.

Garden City, Col.—Architect C. S. Wright, of Colorado Springs, reports: For W. V. Rector, a forty-room hotel, to cost $10,000; under way. This is a new city facing the entrance to the "Garden of the Gods."

Hamilton, Ohio.—Architects J. Stover & Son report: For J. M. Long, two two-story frame dwellings, baths, plumbing, plate and stained glass, slate roof, galvanized iron cornices, mantels, gas, iron cresting and fence; cost $3,000 each; under way. For E. A. Hick, two-story brick dwelling, stone trimmings, plate glass, slate roof, mantels, iron fence, etc.; cost $3,000; under way. For W. W. Brooker, two-story frame dwelling, 40 by 65 feet, plate glass, mantels, etc.; cost $3,000; under way. For Henry Mondy, two-story frame dwelling, 27 by 48 feet; plate and stained glass, mantels, etc.; cost $2,500; under way. Preparing plans for a three-story and basement store building, 40 by 65 feet; pressed brick, with stone basement, stone and granite trimmings, plate and mosaic glass, elevator, steam heat, slate mansard roof, galvanized iron trimmings; cost $25,000. Also for a two-story store building, 50 by 40 feet, for J. Boethinger; cost $3,000.

Hot Springs, Ark.—Architect P. J. Ledevidge has prepared plans for D. C. Day for a five-story brick veneered hotel building.

Indianapolis, Ind.—The contract for building the new Union depot, Thos. Rood architect and engineer, has been awarded to Joseph Downey of Chicago. Delivery of material for the new structure will be commenced at once, Mr. Downey being anxious to commence the erection of the depot proper as soon as the weather will permit in the spring. The cost of the improvements covered by Mr. Downey's contract is a little less than $300,000. The contract for building the sheds will be awarded to C. J. Schultz of Pittsburgh, the stipulated price for his part of the work being nearly $275,000. The depot will be 150 feet square, and the sheds 750 feet long by 190 wide.

Kalamazoo, Mich.—Our city has, as yet, no organized system of inspection of buildings, or permits for building, so that it is not practicable to give any *close* summary of the amount of building which has been done here during the year. In the way of public buildings and business blocks, the amount expended (as deduced from some statistics recently published) is probably not far from $200,000. This includes the large brick block of B. Desenberg & Co., the large brick manufactory of the Michigan Buggy Co., the plant of the Kalamazoo Electric Co., the Second Reformed Church (not yet completed), Ladies' Hall, Kalamazoo College (not completed), the Waterbury terrace, the Michigan Central railroad freight house, rebuilt, and the beginning made on the new passenger house, and a no inconsiderable amount expended in additions to, and improvements upon various business properties. In addition to the above, the asylum has expended about $40,000 in new buildings and improvements, while the amount expended on dwelling house property will probably aggregate $300,000, and the number of new houses is probably considerable in excess of one hundred.

La Crosse, Wis.—Architect S. S. Beman, of Chicago, Ill., has prepared plans for the Batavian Bank and office building, 43 by 114 feet, five stories high, Bedford stone front, with return of twenty feet on the alley; cost about $65,000.

Marshall, Tex.—The Texas & Pacific Railroad Co. are about to erect shops here.

Marshalltown, Ia.—Architect W. A. Fulkerson, of Cedar Rapids, reports: For Iowa State Soldiers' Home building, 100 by 216 feet, central building two stories and basement, with central tower; wings three stories and basement, with circular bays, etc., basement of stone, superstructure walls of brick trimmed with cutstone, slate roof, iron cornice, iron columns, eye beams, steam heat, plumbing, etc.; contract let to Theo. Peterson; foundation to be completed this year; cost $63,740.

Milwaukee, Wis.—Architect James Douglas: For C. E. Gause, frame building for laundry; cost $30,000; John McDermott, builder. For F. W. Wallace, double frame residence; cost $5,000.

Architects Edward V. Koch & Co., report: For Wm. Bollow, residence; to cost $10,000; nearly completed. For Chas. Borchard, brick store and flats, 50 by 100 feet, steam heat, mantels, passenger elevator; cost $20,000. For Hugo Loewenback, frame residence; cost $6,000; Chas. Kraus, carpenter; Chas. Jeske, mason.

Mobile, Ala.—Architect James F. Hutchisson, reports: For Mrs. M. H. Turner, improvements in two-story brick, 25 by 38 feet, slate roof; cost $2,200; under way; Wm. O. Pond & Son, builders. For Hettie White, one-story frame cottage; cost $2,350; under way; Felix Andre, builder. For Rev. J. Winklereid, two-story frame dwelling; cost $5,000; projected. For Rev. J. L. Tucker, repairs, etc., to Christ Church; cost $12,000; projected. For Spring Hill Improvement Co., repairs and improvements; cost $8,000; projected. Also several dwellings; costing $2,000 to $3,000; under way.

Montgomery, Ala.—Architect James F. Hutchisson, of Mobile, reports: For World's Exposition (colored), exposition hall, 300 by 300 feet; art gallery, 60 by 60 feet; woman's department, 100 by 100 feet; grand hotel, 350 by 40 feet; cost of whole improvement, $125,000; projected.

New Corporations.—The Warmington Stone and Marble Company, of Chicago, Ill., has been incorporated. Capital stock, $100,000. Isaac H. Fry, 1800 Wabash avenue; James Warmington and H. C. Wheeler, incorporators. The Canton Iron Roofing Company, of Canton, Ohio, has been incorporated. Capital stock, $25,000. T. C. Snyder, W. L. Alexander, A. B. Walker, T. C. Belding, and A. C. Kannenberg, incorporators. The J. M. Blair Brick Company, of Cincinnati, has been incorporated. Capital stock, $50,000. J. M. Blair, 43 Johnston Building; B. W. Blair, Jos. B. Blair, T. Smith, and A. W. Williamson, incorporators. The Raymond Lead Company, at Chicago. Capital $40,000; incorporators, James N. Raymond, Anna L. Raymond, and Charles E. Heiss. The De Golyer Varnish Company, Chicago. Capital stock, $300,000; Watts De Golyer, Charles F. De Golyer, and Frank S. Weigley, incorporators. The Chicago Lime Company, of Chicago, has been incorporated. Capital Stock, $25,000: Jos. Downey, M. Lester Coffeen, and Henry S. Martin, 69 Market street, incorporators. The Duffy and Hannahs Hardware Company, of Chicago, has been incorporated. Capital stock, $10,000; James F. Duffy, Minnie Duffy, Sarah E. Hannahs, and George B. Hannahs, 142 Dearborn street, incorporators. The New Jersey Clay Manufacturing Company, of Raritan Township, has been incorporated. Capital stock $150,000; Isaac M. Holcomb, Plainfield; Charles E. Street, Crawford; and Charles S. Cowan, New York City, incorporators. The Southern Marble Company, of Marietta, Ga., has been incorporated. Capital stock, $130,000: Jas. B. Harrison, C. D. Horne, M. B. Miles, and Geo. Taylor, of Atlanta, incorporators. The Grand Rapids Veneer Works, of Grand Rapids, Mich., has been incorporated. Capital stock, $40,000; Geo H. White, A. B. Watson and Geo. N. Davis, incorporators. The Peerless Slate Company, of Pittsburgh, Pa., has been incorporated. Capital stock, $3,000; treasurer, William S. Daily; Attorneys Knox & Reed. The Tennessee Marble Company, of Chattanooga, Tenn., has been incorporated. Capital stock, $100,000. The Claflin Manufacturing Company, of Cleveland, O., has been incorporated. Capital stock, $75,000; H. M. Claflin, 29 Euclid avenue, J. L. Sterling, T. A. Hoffman, W. B. Page and John Coon, incorporators. The Chicago Sash Pulley Company, of Chicago, Ill., has been incorporated. Capital stock, $100,000; C. H. Smith, Francis V. Phillips and John Hewitt, incorporators. The Chicago Asbestos Mining and Manufacturing Company. Capital stock, $100,000; incorporators, Thomas J. Phillips, Frank Stinson and Theodore Worcester, the Watson Cut-Stone Company, at Hyde Park, Ill. Capital stock, $20,000; incorporators, Henry Watson, J. H. Outhwaite, Frank Hecht and Charles H. Aldrich.

Rockford, Ill.—Geo. H. Cornack has prepared plans and is about to commence the erection of a four-story and basement brick factory building, 78 by 70 feet; also two-story engine room, 34 by 70 feet; contracts will include iron channels, beams, etc., galvanized iron cornices, felt roof, skylights, elevators, steam heat and power; cost about $10,000; foundation in; Geo. Wilson, mason.

Rushville, Neb.—H. A. Chamberlain is building a court house to rent to the county.

Sioux City, Ia.—Architect W. A. Faulkner, of Cedar Rapids, Iowa, reports: Plans for frame dwelling for George Owen, 36 by 44 feet, with all modern conveniences; projected.

St. Charles, O.—Architects J. Stover & Son, of Hamilton, report: Washington M. E. Chapel, 28 by 50 feet, lecture room, 16 by 30 feet, brick, with stone tower and vestibule, galvanized iron, and stone trimmings, stained glass, furnace heat; cost $4,000; under way.

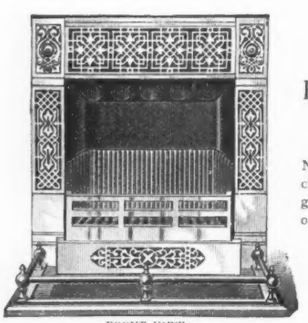
Warrensburg, Ill.—Messrs. Perry, Deal & Co., of Peoria, have prepared plans for C. J. Off for a three-story elevator building; cost $4,000; work to be commenced at once.

Wauwatosa, Wis.—Architects Edward V. Koch & Co., of Milwaukee, report: For T. T. Greenwood, suburban residence, to cost $16,000; Chas. Kraus, carpenter; W. Taddy, mason.

White Pigeon, Mich.—The Presbyterian Society are to erect a church building early in the spring; to cost $4,000 or $5,000; plans have not been made as yet; Rev. J. Emory Fisher is pastor and secretary of the building committee; S. J. Osgood, of Grand Rapids, architect; brick, lumber, roofing, heating apparatus, glass, etc., will be wanted soon.

Wichita, Kan.—Architect Geo. A. Masters has prepared plans for L. M. Crawford, of Topeka, for a three-story opera house, 60 by 145 feet, to be built of brick and stone, trimmed with terra-cotta, galvanized iron cornices, tin roof, iron channels, beams, etc.; hardwood finish and tiling, skylights, stained glass, closets, steam heat, mantels, electric bells, speaking tubes, etc.; electric lights, fireproofing, etc.; cost $50,000; building to be commenced March 1, 1887.

The Jackson Heat-Saving and Ventilating-Grate.



FRONT VIEW.

COMBINED GRATE AND FURNACE.

HEATING ON ONE OR TWO FLOORS.

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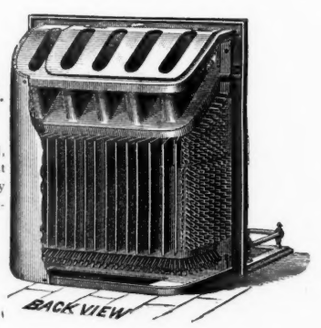

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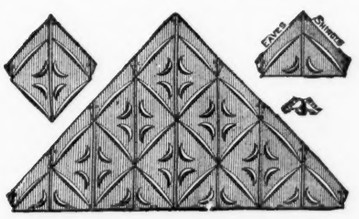

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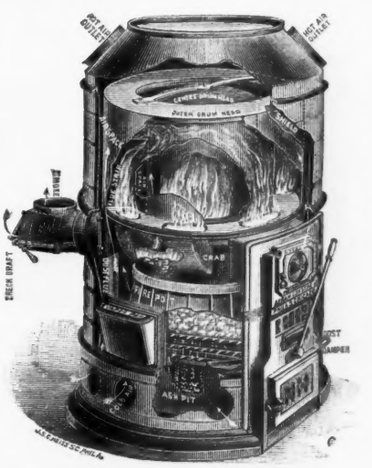

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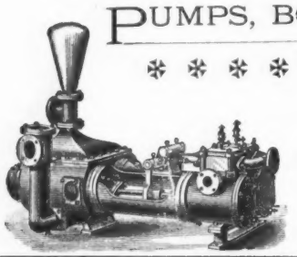

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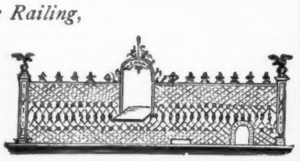

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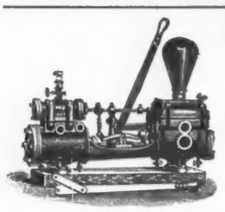

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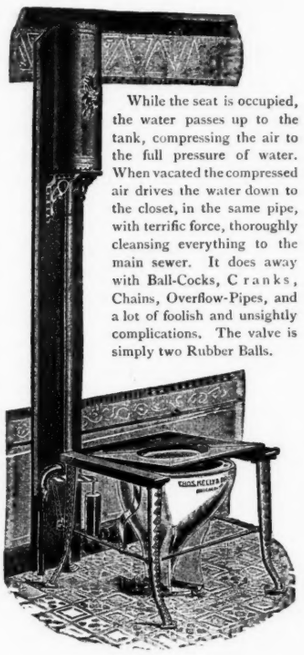

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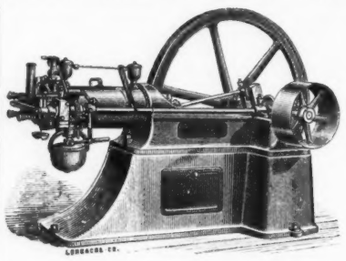

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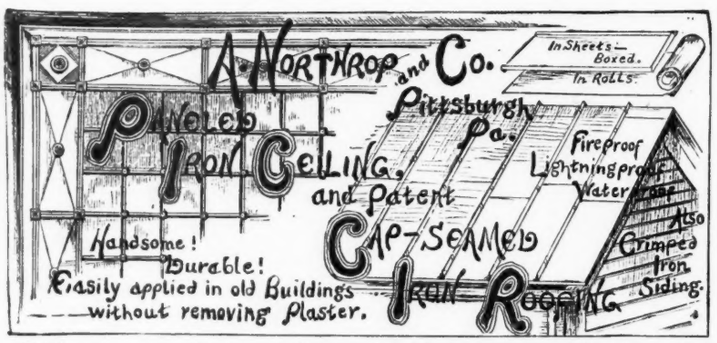

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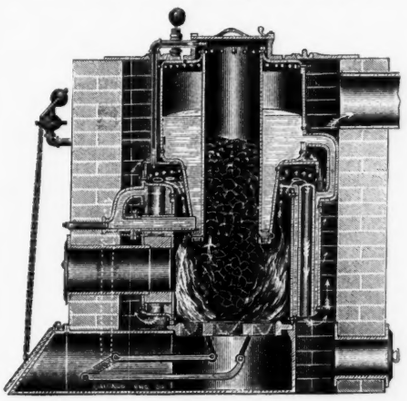

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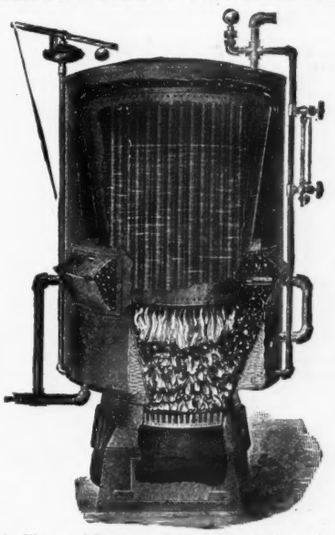

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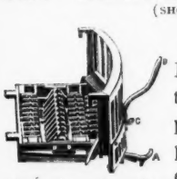

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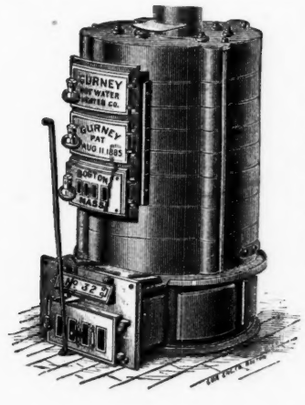

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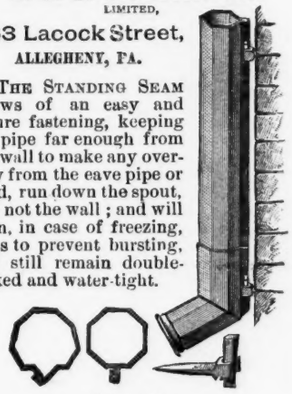

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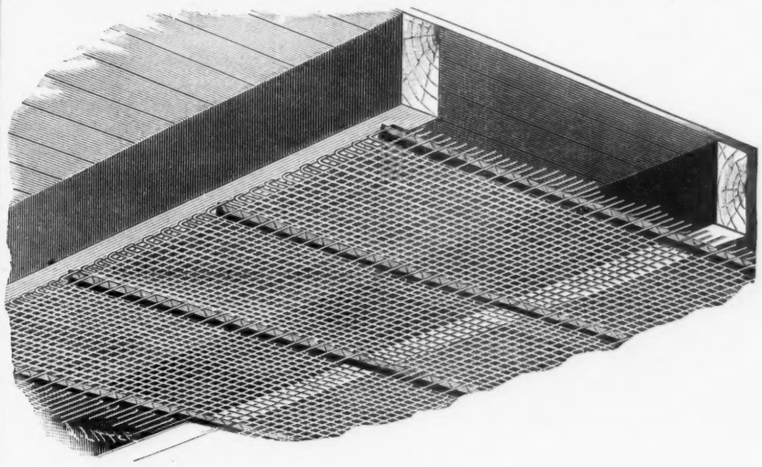

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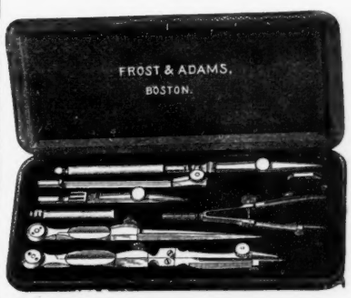

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